



**MediaWall®**

# **4K/UHD Display Processor Technical Reference Guide**

**Models 500-2K, 500-4K, 500AP-4K,  
550-2K, 550-4K, and 550AP-4K**

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## DOCUMENT

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## VERSION INFORMATION

This document describes the features and functions of the following product firmware versions:

- *MediaWall V 4K/UHD Display Processor* firmware: v2.2.0.0
- *MediaWall V Application Processor (AP)*: v1.3.0.0

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# CHAPTER 1

# INTRODUCTION

The *MediaWall V* is a family of high-performance, 4K/Ultra-High Definition (UHD) video wall processors that display an array of windows on high-resolution display devices.

This Technical Reference Guide describes how to install, set up and configure your *MediaWall V 4K/UHD Display Processor* using its command-line interface.

## Note

The *MediaWall V 4K/UHD Display Processor* also provides the *MediaWall V Web Interface* for configuration and control using a Web browser. For details on this interface, refer to the *MediaWall V 4K/UHD Display Processor User's Guide*.

System control for the *MediaWall V 4K/UHD Display Processor* is provided via an RS-232 serial port or 100/1000Base-T Ethernet port. The RS-232 serial port connects to an ASCII terminal, any computer with a serial port, or an external device such as a touchscreen controller. Commands are sent from the terminal or computer to the *MediaWall V 4K/UHD Display Processor*. The Ethernet port allows a *MediaWall V 4K/UHD Display Processor* system to be connected to a local area network (LAN) or directly to a PC.

Both control interfaces use the same command-line control protocol, which is described in [Chapter 4](#) and [Chapter 5](#) of this manual.

# CHAPTER 2

# FUNDAMENTALS

This chapter provides an overview of basic video wall concepts and terminology. The following topics are discussed:

- [Image Rectangles](#)
- [Aspect Ratio](#)
- [Positioning and Clipping](#)
- [Priority Levels](#)
- [Wall Fundamentals](#)

## 2.1 Image Rectangles

The resolution of raster scanned images is defined by the number of pixels per line and the total number of lines per frame. For example, the WUXGA format is defined as having a resolution of  $1920 \times 1200$  (1920 pixels per line and 1200 active lines). This convention is applied to both the input and outputs of the *MediaWall V*. Note, however, that the output coordinate space for the *MediaWall V* is related to the overall, aggregate wall configuration.

### Example

If the wall is configured as a linear 1 x 4 wall made up of displays each with  $1920 \times 1200$  resolution, the output coordinate space is  $7680 \times 1200$  pixels.

In windowing products, the input signal is the source image and the portion of the input signal that will be used is known as the **source rectangle**. This is an important point as it means the source rectangle does not necessarily have the same dimensions as the input signal resolution.

The **destination rectangle** defines the size and position of the window displayed on the output.

- A source rectangle selects a rectangular portion of a full size input. Typically, the source rectangle contains the entire source, but it can also contain a cropped portion.

This portion fills the destination rectangle (as described below), and appears in a window on the display device. The *MediaWall V* automatically changes an input's source rectangle as various zoom and pan controls are used to manipulate portions of the full-size image.

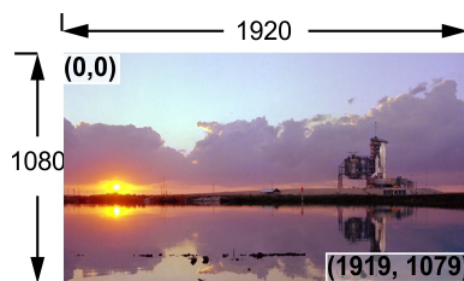
- A destination rectangle specifies the output window's size and screen position on the wall. The content of the window is defined by the source rectangle's parameters.

To define the source rectangle, use the [WINdowSouRCeRECTangle](#) or [WINdowSouRCeRECTangleRELative](#) command. Use the commands [WINdowDESTinationRECTangle](#) and [WINdowDESTinationRECTangleRELative](#) to specify the destination rectangle.

### 2.1.1 Window Source Rectangle

The source rectangle for each input is defined in terms of the image's pixel position in coordinate space. The image's top left corner is positioned using these coordinates, and the image's width and height are defined in the same way.

In the example shown in [Figure 2-1](#), the full size source image is 1920 pixels wide by 1080 lines high.



**Figure 2-1** Full Size Source Image

By convention, the upper left corner starts at pixel coordinate (0,0). The bottom right corner ends at coordinate (1919,1079). The *MediaWall V* uses the following convention to define a window source rectangle:

`x, y, width, height`

The x and y parameters define the coordinates of the first pixel located at the top left of the image. The width and height parameters define the size of the image. This convention is used in the command line interface with the [WINdowSouRCeRECTangle](#) command which sets the source rectangle for the selected input.

Thus, to define (and use) the full-size picture from [Figure 2-1](#) as the Wall 1, Window 1 source, the command is:

```
winsrrect 1 1 0 0 1920 1080
```

In the example shown in [Figure 2-2](#), a portion of the full-size source image has been defined.



**Figure 2-2** Portion of Full Size Image

The cropped image is 800 pixels wide by 600 lines high. The upper left corner starts at pixel coordinate (980,250). The bottom right corner ends at coordinate (1779,849).

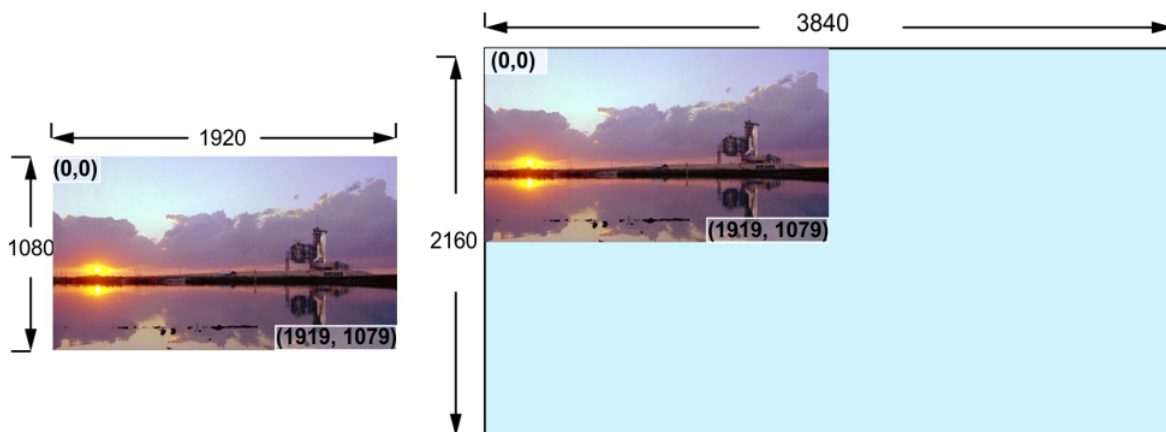
Thus, to define (and use) the cropped picture from [Figure 2-2](#) in Wall 1, Window 1, the command is:

```
winsrcrect 1 1 980 250 800 600
```

## 2.1.2 Window Destination Rectangle

Each window's destination rectangle is defined in terms of the display space coordinates, rather than the input (source) coordinates. Each destination rectangle represents the source rectangle mapped to a specific size and position on the display.

In [Figure 2-3](#), the display monitor is 3840 × 2160. The full-size source rectangle from [Figure 2-1](#) is mapped to a destination rectangle, starting at coordinates (0,0), with a horizontal width of 1920 pixels and a vertical height of 1080 lines.

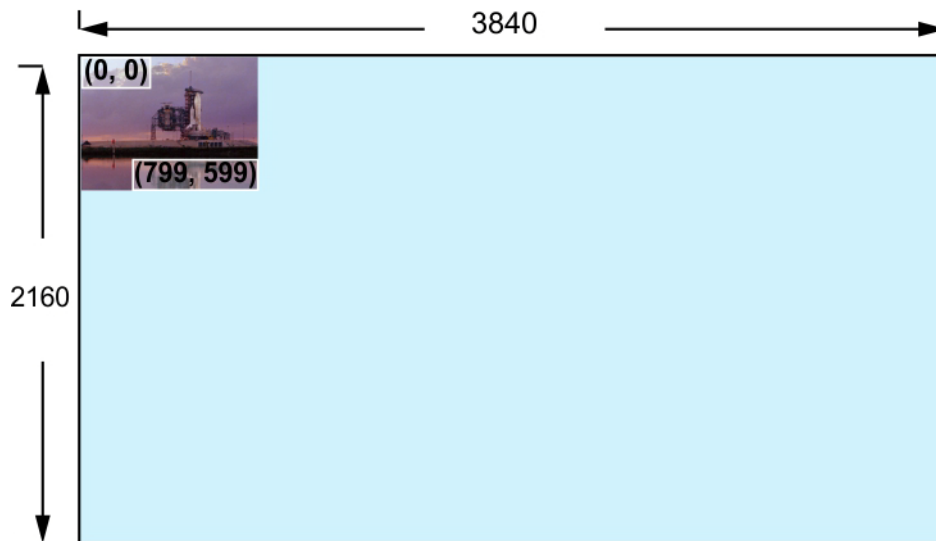


**Figure 2-3** Full-Size Source Mapped to Destination

The window destination rectangle defines the window displayed on the output in terms of both position and size. Thus, to map the full size picture from [Figure 2-1](#) to a destination rectangle the command would be:

```
windestrect 1 1 0 0 1920 1080
```

In [Figure 2-4](#), the cropped image from [Figure 2-2](#) is mapped to a new destination space on the display device.



**Figure 2-4** Cropped Source Mapped to Destination

In this case, the command is:

```
windestrect 1 1 0 0 800 600
```

By this means, we can take a portion of the source image and place it anywhere on the display space without resizing. By changing the destination size parameters (800 × 600 in the above example) to 3840 × 2160 we can expand this cropped image to fill the display device. In this case the command would be:

```
windestrect 1 1 0 0 3840 2160
```



**Figure 2-5** Cropped Source Scaled to Fill a Single UHD Display

**Note**

This is effectively zooming into a section of the source image.

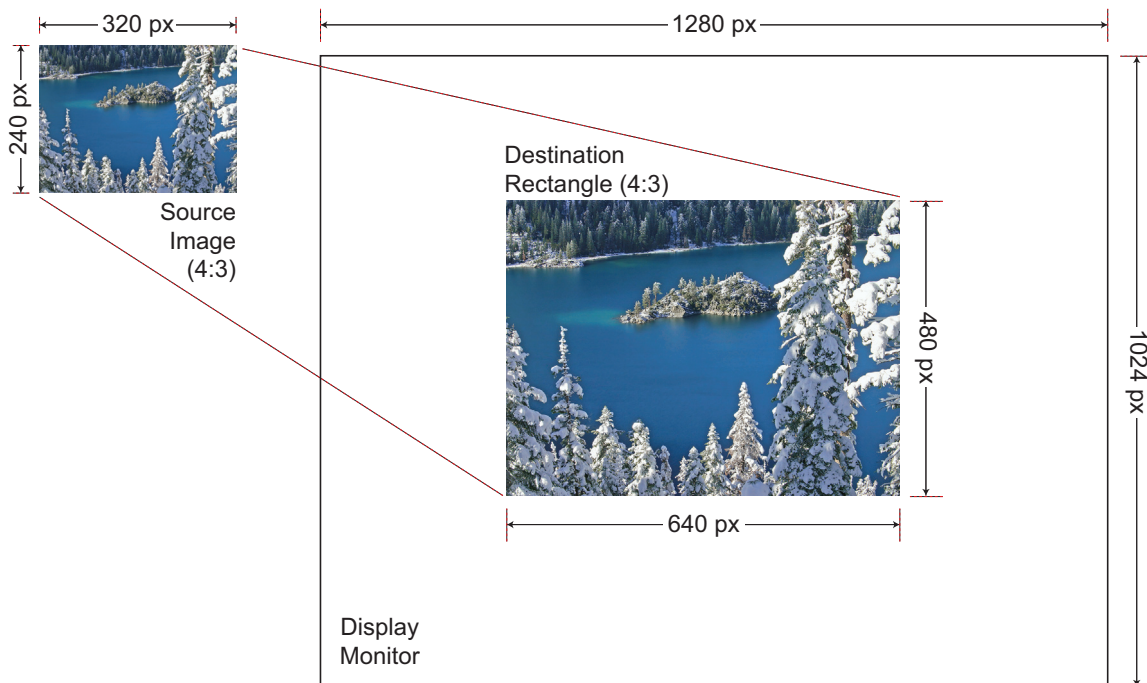


## 2.2 Aspect Ratio

The source rectangle selects any rectangular portion of an input. This source can then be displayed (mapped) in a destination rectangle — in an identical or different-sized window.

The destination rectangle can be set to any shape and any size on the display space. The size and shape of the source rectangle are independent of the destination rectangle's dimensions.

Suppose that you have defined an input's source and destination rectangles so that a  $320 \times 240$  portion of a video source image is mapped into a  $640 \times 480$  window. Here, the destination rectangle is larger than the source rectangle, but it has the same shape and the same width-to-height aspect ratio (4:3). Thus, the original input is enlarged (scaled) equally, in both dimensions. See [Figure 2-6](#).



**Figure 2-6 Source Image and Destination Rectangle with the Same Aspect Ratio**

Changing the destination rectangle's size while preserving its aspect ratio makes the displayed image larger or smaller. As long as its proportions correspond to those of the source rectangle, the output image resembles the input image.

If you independently vary the shape of either the source or destination rectangle, so that their aspect ratios are no longer the same, the displayed picture will appear stretched or squeezed as compared to the original image.

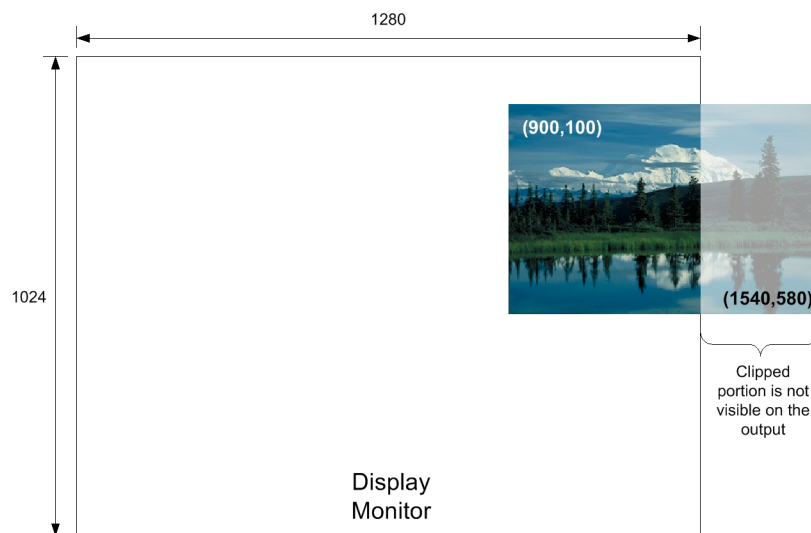
## 2.3 Positioning and Clipping

A window can be positioned anywhere on the output display. If the window's destination rectangle is defined so that a portion is off the screen, that portion is said to be **clipped**.

For example, in [Figure 2-7](#), the full-size source rectangle (640 × 480) is mapped to a destination rectangle, starting at (900,100):

```
windestrect 1 1 900 100 640 480
```

The right-hand portion of the source image is clipped.

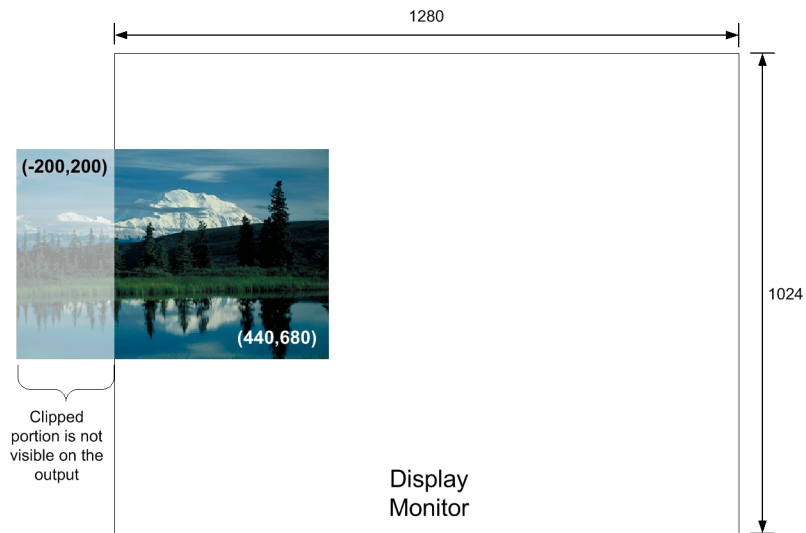


**Figure 2-7** Clipped Image, Screen Right

In [Figure 2-8](#), the same source rectangle is mapped to a destination rectangle starting at (-200,200):

```
windestrect 1 1 -200 200 640 480
```

By specifying screen coordinates with negative values, the left and top edges of the source image can be clipped. Note that the origin (top left corner) of the destination rectangle can have either negative or positive values, but the height and width must always be positive values.



**Figure 2-8** Clipped Image, Screen Left



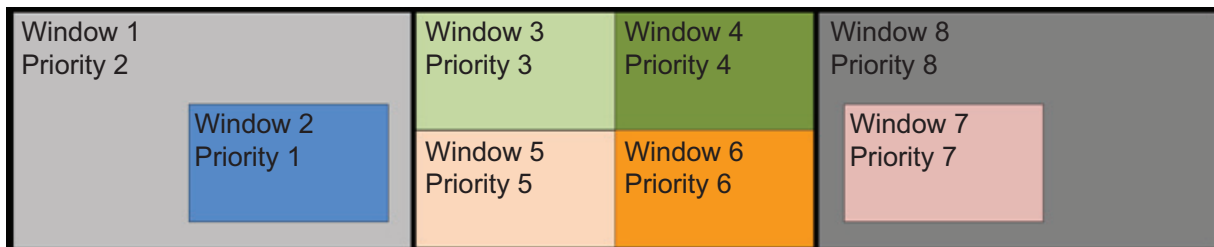
## 2.4 Priority Levels

The *MediaWall V 4K/UHD Display Processor* uses the **Priority** function to determine which of several overlapping windows are visible. You can change the priority levels of windows so that different ones come to the front and others move to the back. When windows overlap, their relative visibility depends on their respective priority levels.

### Note

Clocks always have a higher priority than windows.

In [Figure 2-9](#), Window 2 has priority over the other windows, and overlays any window with a lower priority.



**Figure 2-9 Window Priorities**

Note the following:

- The available levels are 1 through 64, where 1 represents the highest priority.
- The window with the highest priority appears in front of all other windows. Lower-priority windows appear behind it.
- Only the overlapped region of a window is obscured by a higher-priority window.
- No two windows can have the same priority.
- If a window's priority is increased, the window previously holding that priority is automatically demoted by one level.
- Promoting (or demoting) one window leaves the priorities of the other windows unchanged relative to each other.

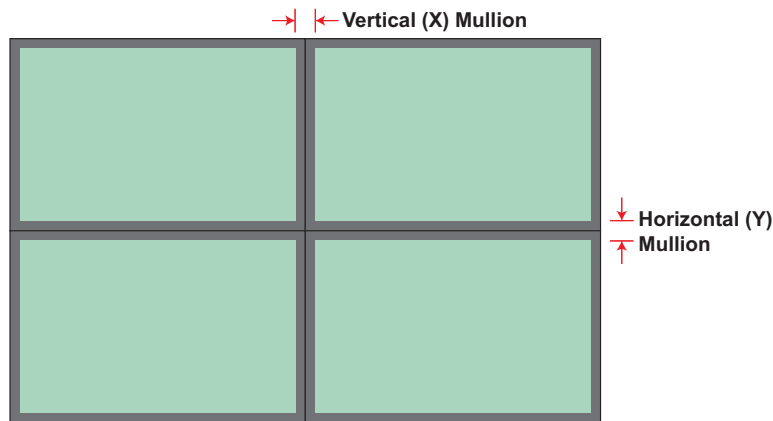


## 2.5 Wall Fundamentals

The *MediaWall V 4K/UHD Display Processor* is designed to process and display images on a wall composed of separate display devices commonly referred to as “cubes” or “tiles.”

### 2.5.1 Wall Mullions

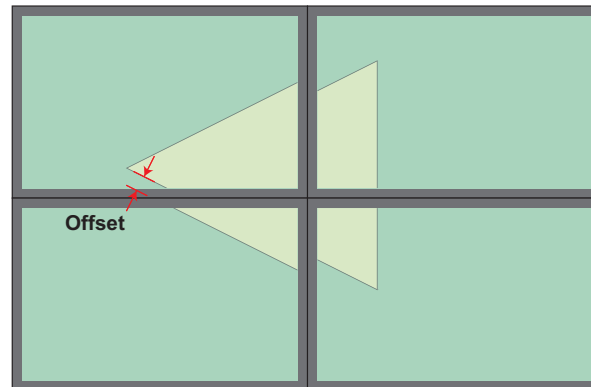
When a wall is constructed by placing display devices adjacent to each other, there is typically a frame around the viewable space of each display panel. This means that the viewable areas of adjacent devices are not exactly touching each other, as shown in [Figure 2-10](#).



**Figure 2-10** Mullions in a 2 × 2 Wall

The effect of viewing the image surrounded by the display frames (or **bezels**) is equivalent to seeing the image through a window having multiple window panes (four in this case). The vertical and horizontal dividers formed by adjacent bezels are called **mullions**.

Although modern display devices have narrow bezels, the effects of the physical offsets between the viewable areas must be taken into account or the displayed wall image will have apparent discontinuities between the different display panels. The *MediaWall V 4K/UHD Display Processor* provides a convenient method to compensate for mullions.



**Figure 2-11** Incorrect Mullion Compensation Causing Image Displacement

The *MediaWall V 4K/UHD Display Processor* calculates the effects of mullion dimensions and compensate in scaling each output signal. Mullion size is defined in terms of the equivalent number of pixels obscured by the mullion.

Refer to [Mullion Compensation on page 67](#) for instructions on using the mullion compensation command.

## 2.5.2 Output Overlap and Edge Blending

Mullion compensation corrects distortion of the final image due to the offset caused by the bezel surrounding individual display devices. An opposite issue can occur in walls using front or rear projection. This requires a feature known as **output overlap**.

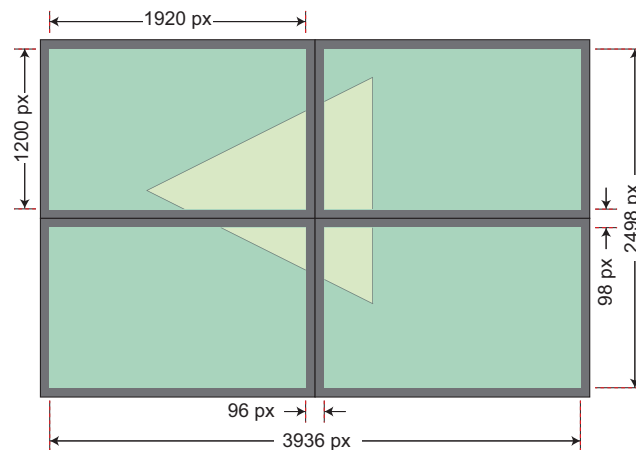
To provide a seamless transition between the images from adjacent projectors, a technique known as **edge blending** is often used. Edge blending requires that the images from projectors overlap in the region where the projector images are butted together. The *MediaWall V 4K/UHD Display Processor* provides a user-definable overlap between outputs to support the edge blending capability of projectors.

When overlap is enabled, *MediaWall V 4K/UHD Display Processor* stretches the image on each output so that adjacent images will contain a small portion of the output adjacent to it on the wall. An external edge blending device then blends the edges of the two adjacent outputs to provide a seamless transition between one projector and the next. The size of this overlap area can be adjusted to suit the needs of the installation and particular edge blending device used.

Refer to [Output Overlap on page 68](#) for instructions on using the output overlap command.

### 2.5.3 Background Space

If the mullions have zero width and height, the effective maximum visible destination rectangle of windows on a wall is the resolution of the complete wall. For example, on a 2 x 2 wall with a display device resolution of 1920 x 1200, the wall resolution is 3840 x 2400. However, if the mullions are non-zero, the effective size of the output space is increased by the mullion widths, as shown in [Figure 2-12](#).



**Figure 2-12** Effective Display Size of a Wall with Mullions

# CHAPTER 3

# INSTALLATION AND SETUP

This chapter provides information regarding installation and setup of the *MediaWall V 4K/UHD Display Processor*. The following topics are discussed:

- [Shipment Contents and Optional Accessories](#)
- [Installation Considerations](#)
- [Mounting the MediaWall V](#)
- [Front Panel Features](#)
- [Rear Panel System Connections](#)
- [Applying Power to the MediaWall V](#)
- [Selecting a Control Method](#)
- [Using the Application Processor \(AP\) \(Models 500AP-4K and 550AP-4K only\)](#)

## 3.1 Shipment Contents and Optional Accessories

Your *MediaWall V 4K/UHD Display Processor* shipment includes the following items:

- *MediaWall V 4K/UHD Display Processor*
- AC power cord, 8 ft. (2.44m) (one per power supply)
- Chassis mounting rails (2) (part number 410-9222-02)
- 10-32 truss-head screws (10) (part number 440-11796-01), for chassis mounting rails
- Rear rack-mount cable management system (strain relief bar)

The following optional accessories are also available ([contact RGB Spectrum](#) for more information):

- Telescoping slide rail kit (part number 920-11520-01)
- *MediaWall V 4K/UHD Display Processor Technical Resources* CD (part number 610-11753-07)





## 3.2 Installation Considerations

Proper installation of your *MediaWall V 4K/UHD Display Processor* will enhance product performance and extend the life of the product. Consider the following when planning and carrying out your video wall installation.

### 3.2.1 Ventilation

To ensure adequate air flow and maintain a proper operating temperature, provide a minimum of 4 to 6 inches (101 to 152 mm) of free air space around the chassis. Any front cabinet doors or access aisles must accommodate a front chassis clearance of at least 6 inches (152 mm) in order to allow access to the system air filter for maintenance. Ideally, a chassis clearance of 0.5 to 1.5 inches (13 to 38 mm) above the Display Processor is desirable, but not required.

### 3.2.2 Ambient Heat

Keep the ambient temperature constant and below 35 °C (95 °F). Keep the *MediaWall V* away from heating and air conditioning vents.

### 3.2.3 Ambient Light

In general, minimize or eliminate light sources directed at the video wall. Contrast ratio will be noticeably reduced if light directly strikes a screen, such as when a shaft of light from a window or floodlight falls on the image. Images may then appear washed out and less vibrant.

### 3.2.4 Cables and Connections

When connecting your equipment:

- Turn off all equipment before making any connections.
- Use the correct signal cables for each source.
- For best performance and to minimize cable clutter, use high-quality cables that are only as long as necessary to connect two devices. (Don't use a 20-foot cable when a 6-foot cable will suffice.)
- Ensure that the cables are securely connected. Tighten the thumbscrews on connectors that have them.



### 3.3 Mounting the MediaWall V

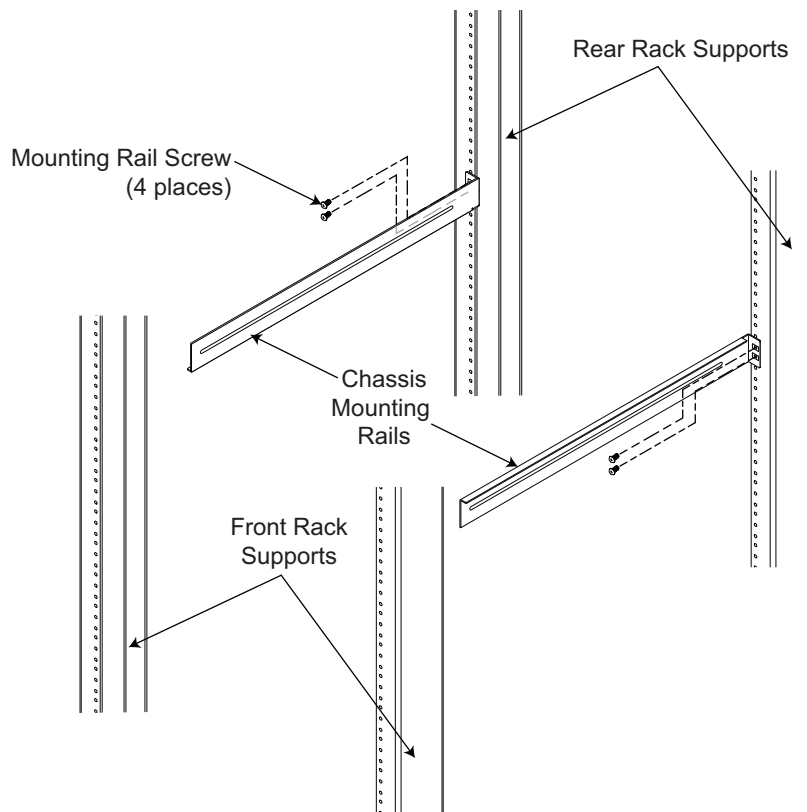
The *MediaWall V 4K/UHD Display Processor* can be placed on any flat, stable surface such as a shelf or table, or it can be rack-mounted. Place it in a location that provides easy access to the rear-panel connectors. When the *MediaWall V* is to be used in a rack, it should be mounted before making any connections.

#### Caution

1. This procedure requires two people with experience in mechanical installations, to avoid possible personal injury and/or equipment damage.
2. Do not attach the *MediaWall V* to a rack using the front mounting ears alone. ALWAYS use the chassis mounting rails to secure the *MediaWall V* to the rear rack supports.

To mount the *MediaWall V* in a standard, 19-inch equipment rack:

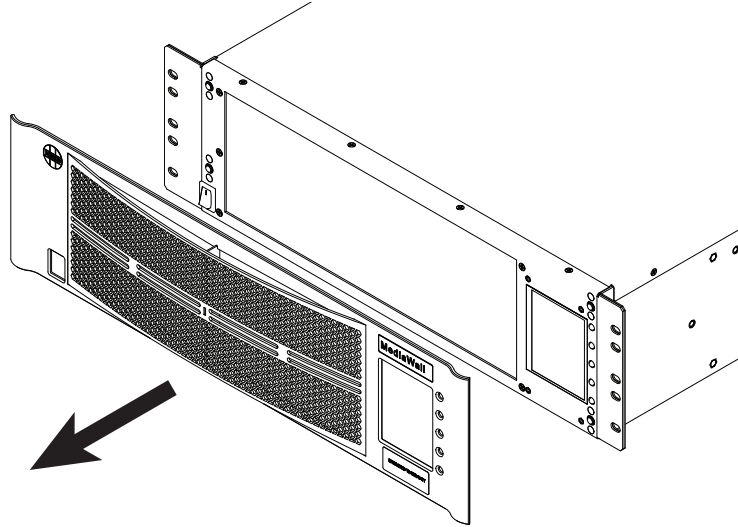
1. Attach the chassis mounting rails to the rear rack supports. (Use mounting screws compatible with your rack; the *MediaWall V* accessory kit does not include these.) See [Figure 3-1](#), which shows an “inside” mount. Depending on the type of rack you are using, an “outside” mount may also be possible.



**Figure 3-1** Attaching the Chassis Mounting Rails to the Rear Rack Supports (Inside Mount)



2. Remove the air filter cover on the front of the chassis by grasping the left and right edges and pulling the cover toward you.



**Figure 3-2** Removing the Air Filter Cover

3. **With the help of an assistant**, lift the chassis and position it between the rails. **Support the chassis from below as you do this.**

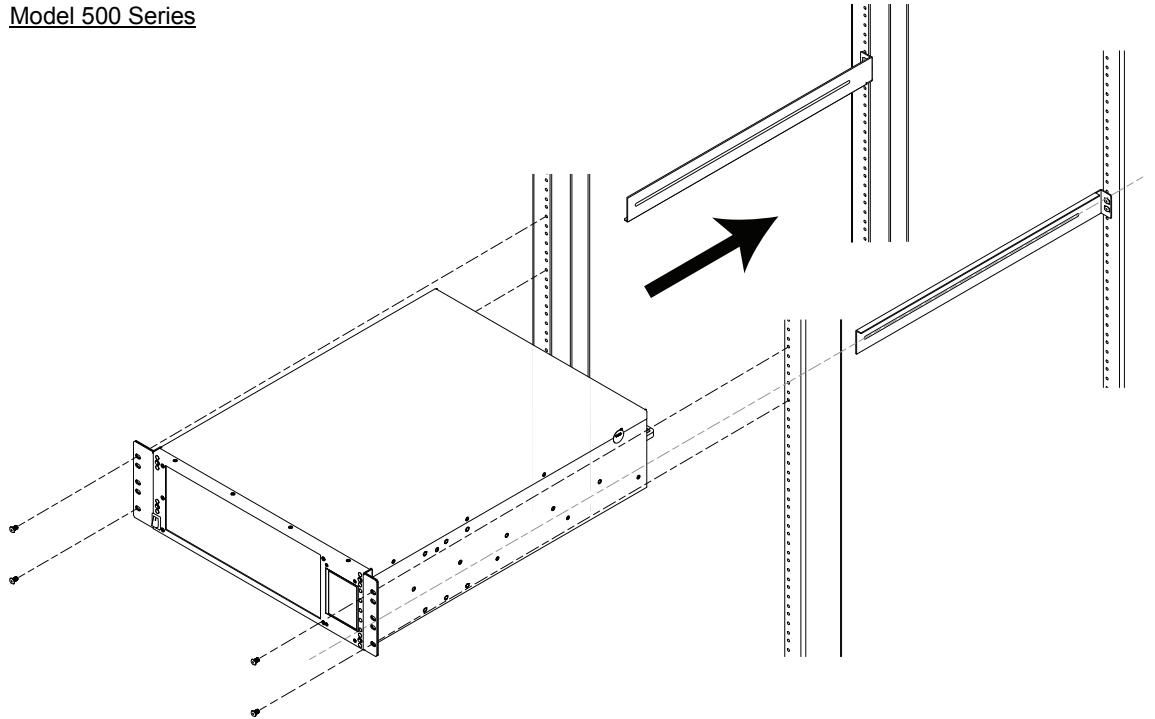
**Note**

If you are rack-mounting a *MediaWall V* Model 550 Series, position the bottom half of the chassis between the rails.

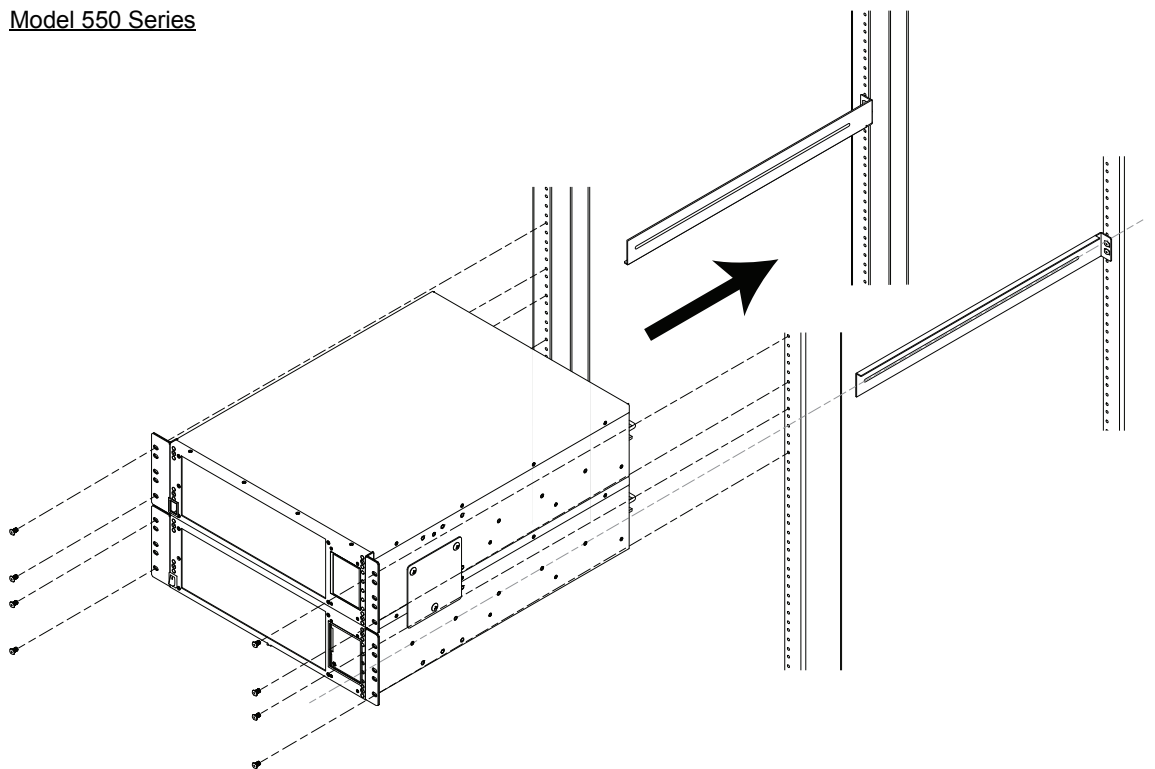
4. Attach the rack mounting ears at the front of the chassis to the front rack supports. See [Figure 3-3](#). (Use mounting screws compatible with your rack; the *MediaWall V* accessory kit does not include these.)



Model 500 Series



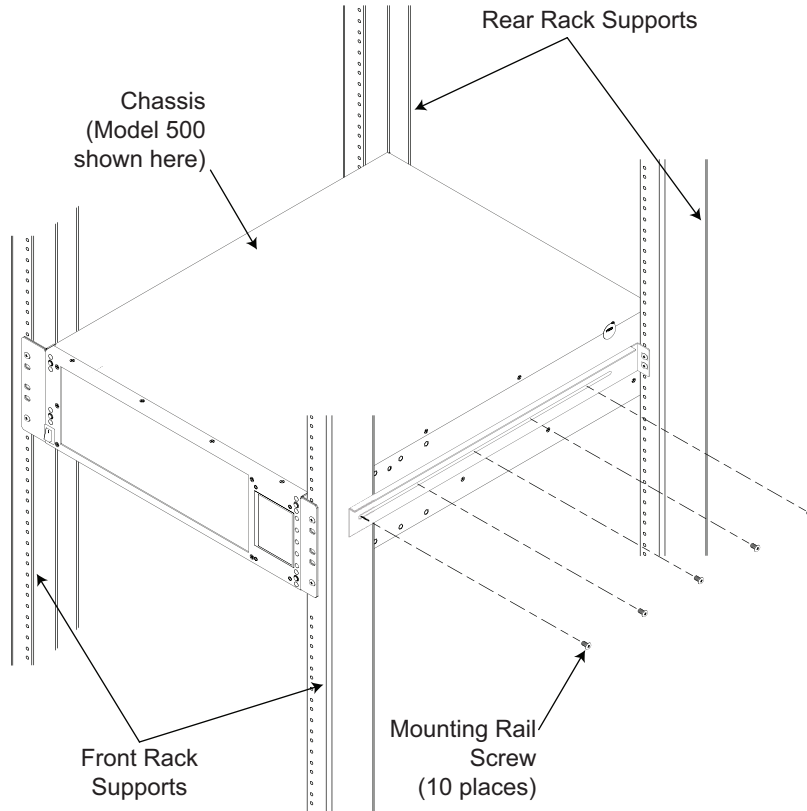
Model 550 Series



**Figure 3-3** Securing the Chassis Mounting Ears to the Front of the Rack



5. Attach the mounting rails to the sides of the chassis, using the 10-32 truss-head screws included with the *MediaWall V* accessory kit. See [Figure 3-4](#).



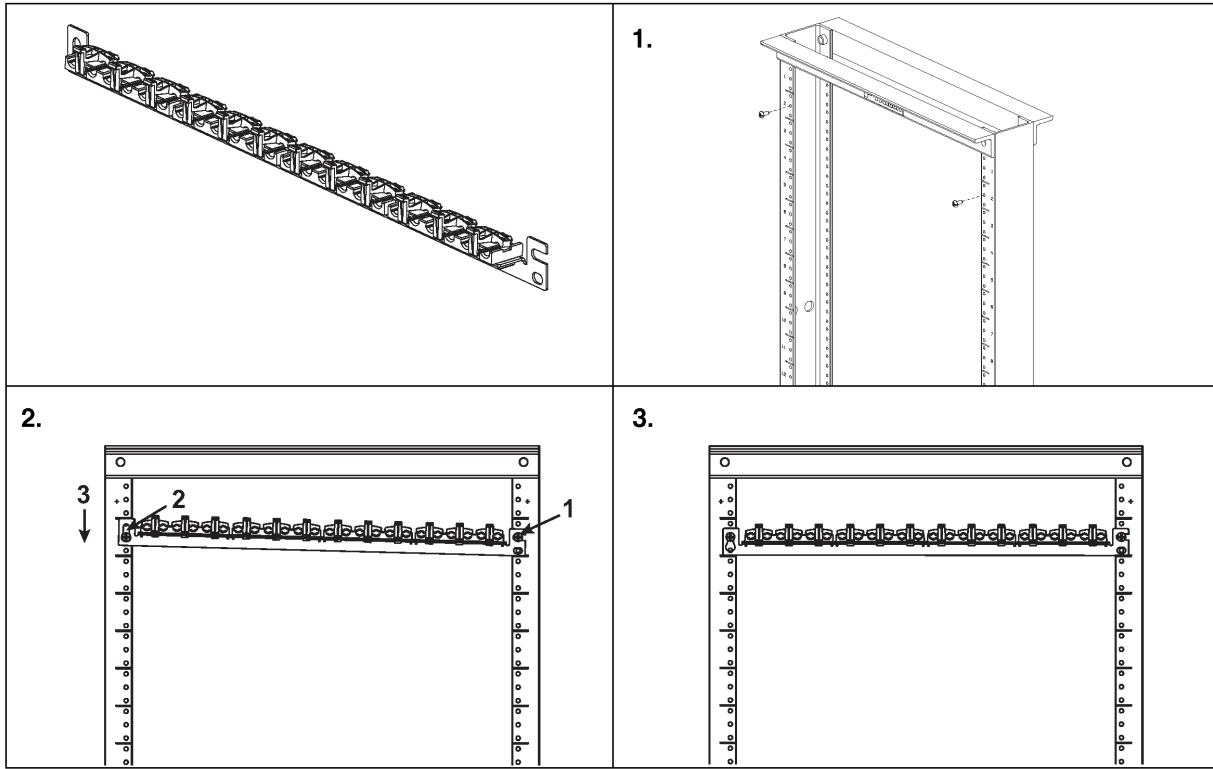
**Figure 3-4** Securing the Chassis to the Mounting Rails

6. Replace the air filter cover.

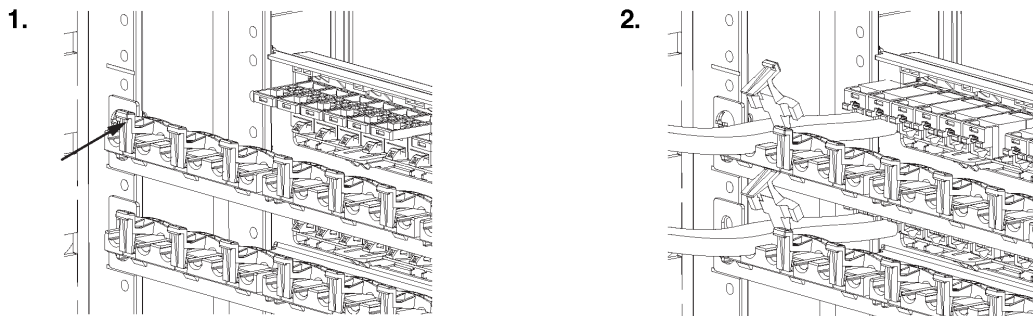


### 3.4 Installing the Cable Management System (Strain Relief Bar)

To minimize clutter and cable strain which can damage equipment connectors, you should install the rear rack-mount cable management system included in the *MediaWall V* accessory kit. For instructions, see [Figure 3-5](#).



#### Cable Installation Instructions



**Note:**

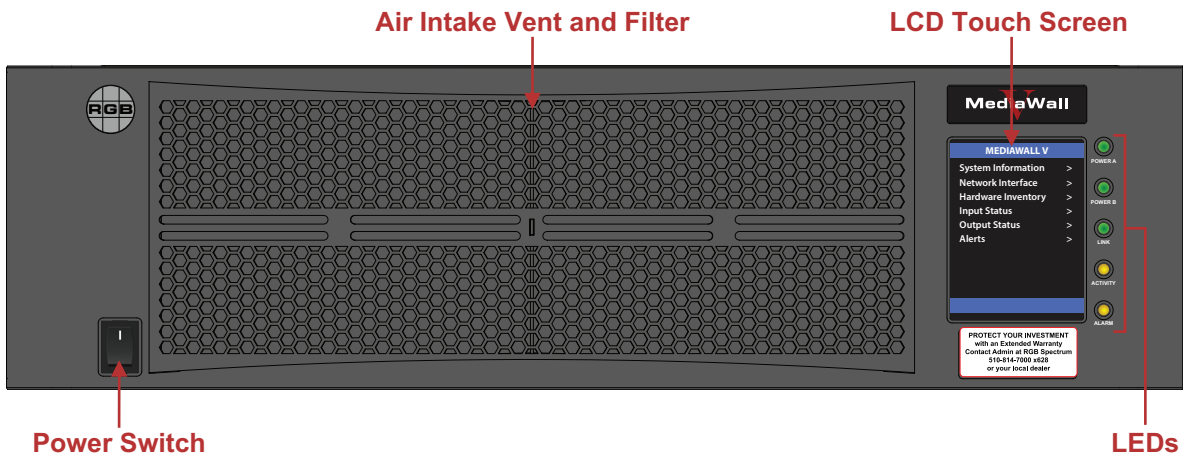
Install copper cable in typical fashion allowing for adequate slack to run over the strain relief clips. Once the cable is positioned in the clip, press the strain relief clip down until snug. The design of each clip is such that at no time should a clip be twisted. The living hinge design can separate and develop cracks or fractures if twisted to the right or left.

**Figure 3-5** Installing and Using the Cable Management System

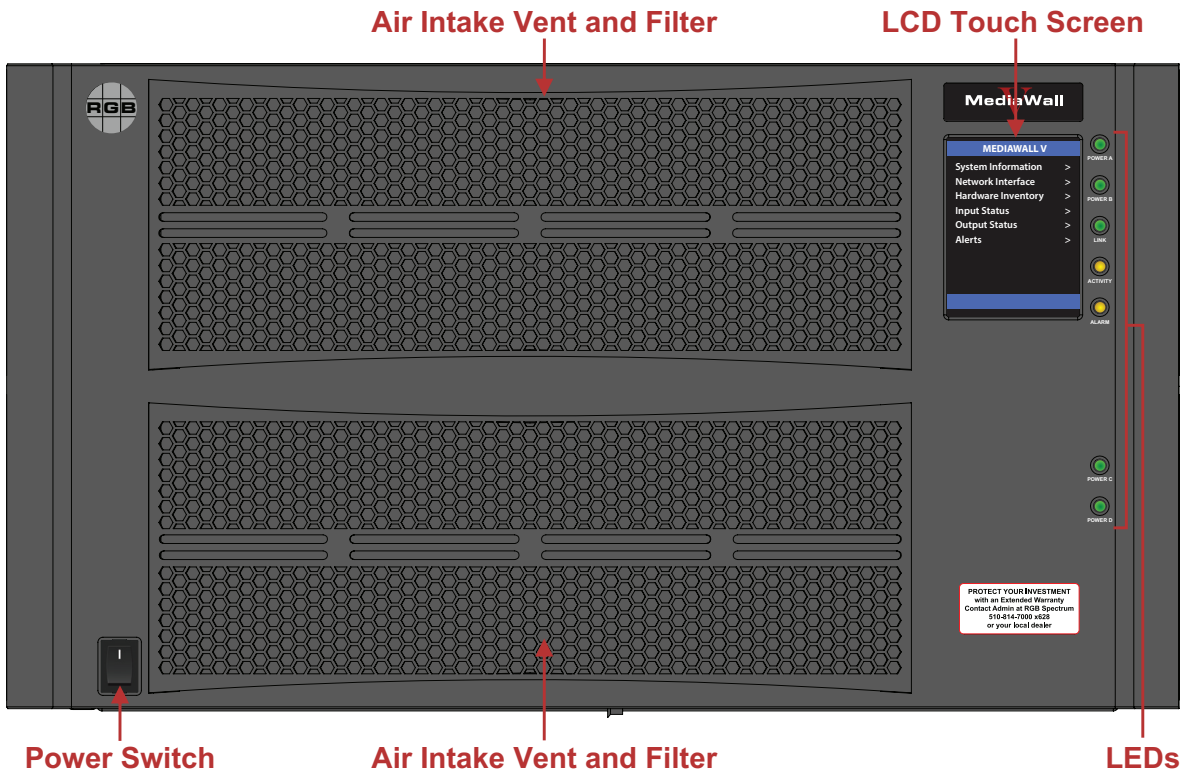


### 3.5 Front Panel Features

[Figure 3-6](#) and [Figure 3-7](#) show the *MediaWall V 4K/UHD Display Processor* front panel.



**Figure 3-6** MediaWall V Front Panel – Model 500 Series



**Figure 3-7** MediaWall V Front Panel – Model 550 Series



### 3.5.1 Power Switch

Use the front-panel power switch to turn the power on and off.

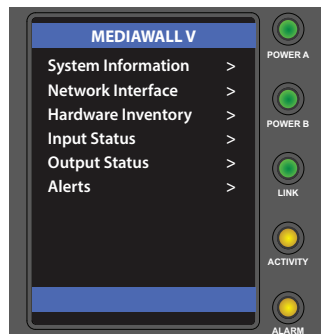
### 3.5.2 Air Intake Vent and Filter

To prevent overheating the *MediaWall V 4K/UHD Display Processor*, check the front panel filter once a month. If the *MediaWall V 4K/UHD Display Processor* is used where dust and dirt are a problem, it is recommended that the filter be inspected more frequently.

If the *MediaWall V 4K/UHD Display Processor* overheats, the alarm indicator lights. When this occurs, turn the system power off and replace or clean the filter. Refer to [Air Filter Replacement](#) in [Chapter 7](#) for instructions.

### 3.5.3 Indicators

The five LED indicators on the front panel are described below.



**Figure 3-8 LED Indicators**

#### **POWER A / POWER B**

Lights to indicate that power supplies A and B are working.

#### **POWER C / POWER D (MODEL 550 SERIES)**

Lights to indicate that power supplies C and D are working.

#### **LINK**

Lights when a valid connection is present on the Ethernet port.

#### **ACTIVITY**

Lights to indicate network activity through the 100/1000Base-T Ethernet port.





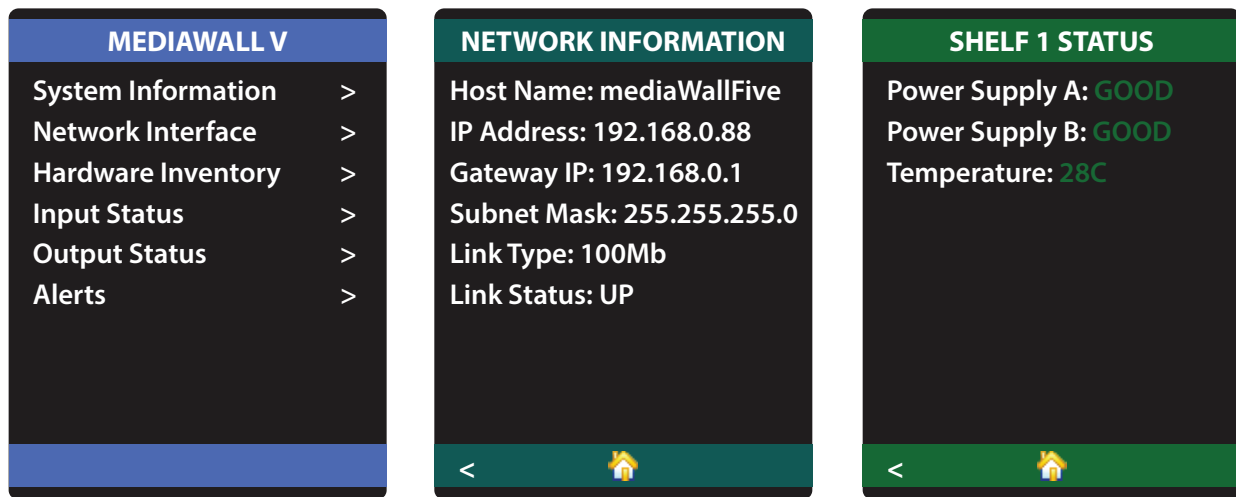
### ALARM

This LED lights when the *MediaWall V 4K/UHD Display Processor* exceeds the operating temperature limit. If this occurs:

1. Verify that the system fan is operating.
2. Power off the system.
3. Check that air intake (front) and exhaust (rear) vents are not obstructed.
4. Check the air filter. Replace or clean if necessary.

This LED also lights when a power supply fails.

### 3.5.4 LCD Touch Screen



**Figure 3-9** Typical Front-Panel LCD Touch Screen Menus



Use the *MediaWall V* touch screen to access the following information:

- **System attributes**
  - ◆ Model Number
  - ◆ Firmware Version
  - ◆ Wall Layouts
  - ◆ Hardware Status (temperature, power supply status)
- **Network Interface settings**
  - ◆ Host Name
  - ◆ IP Address
  - ◆ Default IP Gateway
  - ◆ Subnet Mask
  - ◆ Link Type
  - ◆ Link Status
- **Serial Interface settings**
  - ◆ Baud Rate
  - ◆ Echo (ON or OFF)
- **Installed hardware**
  - ◆ Processors
  - ◆ Input/Output (I/O) Cards
  - ◆ Window Processing Modules (WPMs)
- **Input Status**
- **Output Status**
- **Alerts** (if any)



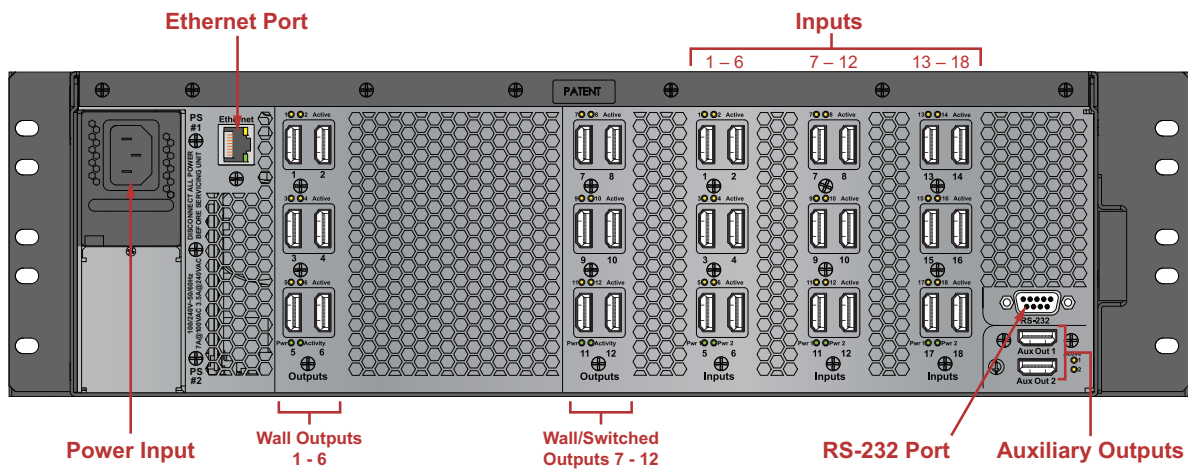
### 3.6 Rear Panel System Connections

All connections to the *MediaWall V 4K/UHD Display Processor* are made to the rear of the unit.

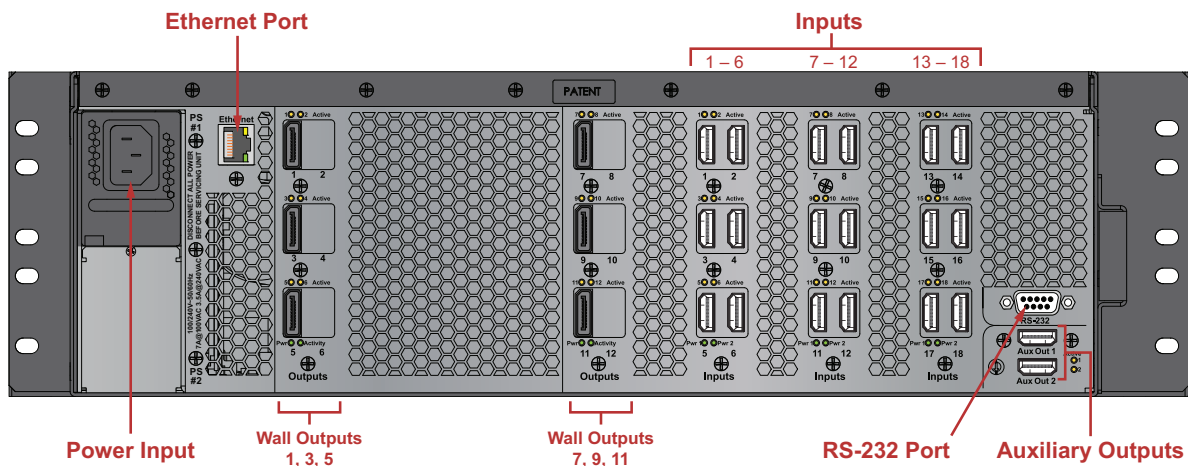
**Note**

Before proceeding with installation, ensure that the front-panel power switch is in the OFF position.

[Figure 3-10](#) and [Figure 3-11](#) show the *MediaWall V Model 500* rear panel.



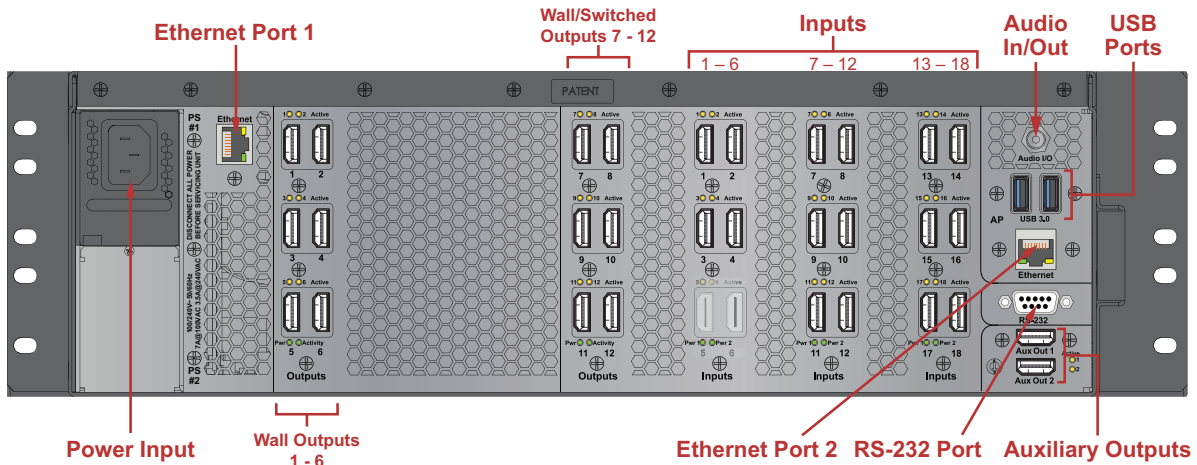
**Figure 3-10** MediaWall V Rear View – Model 500 with HDMI Wall and Switched Output Modules



**Figure 3-11** MediaWall V Rear View – Model 500 with DisplayPort Output Modules

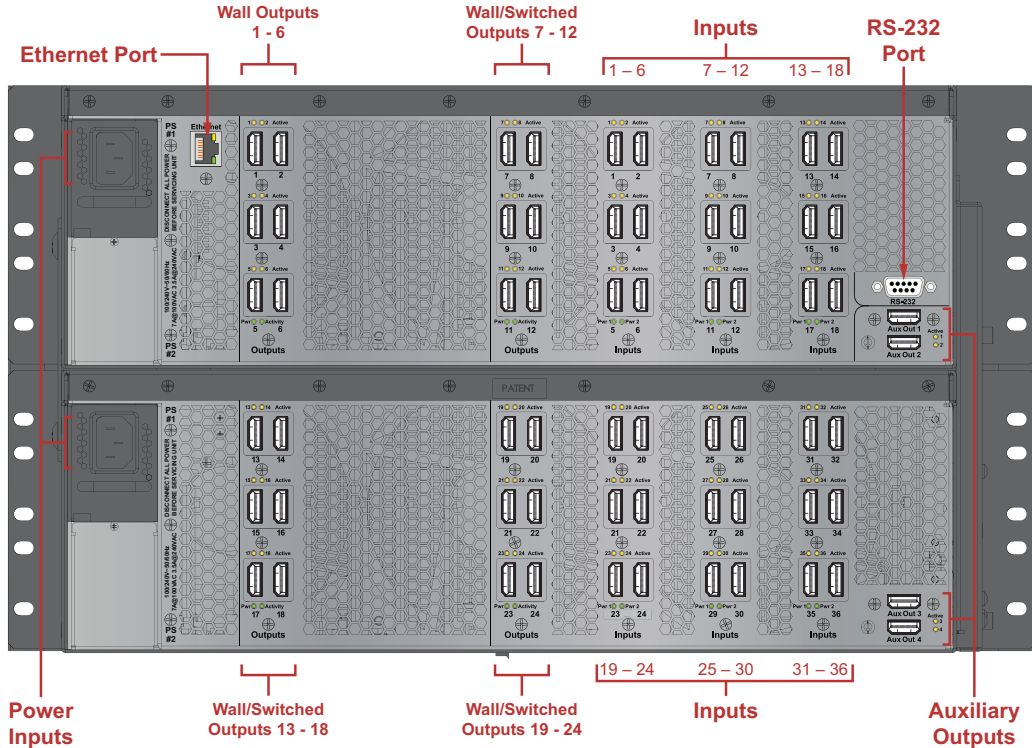


**Figure 3-12** shows the rear panel of a *MediaWall V* Model 500AP-4K equipped with HDMI Wall and Switched Output Modules.



**Figure 3-12 MediaWall V Rear View – Model 500AP-4K**

**Figure 3-13** and **Figure 3-14** show the *MediaWall V* Model 550 rear panel.



**Figure 3-13 MediaWall V Rear View – Model 550 with HDMI Wall and Switched Output Modules**

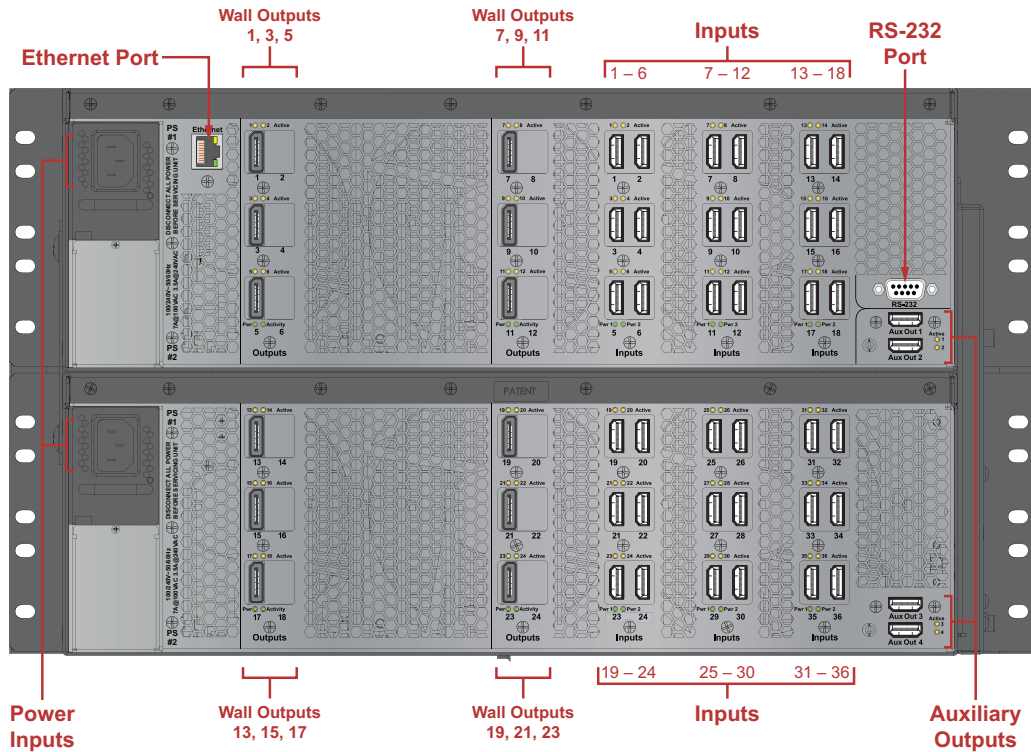
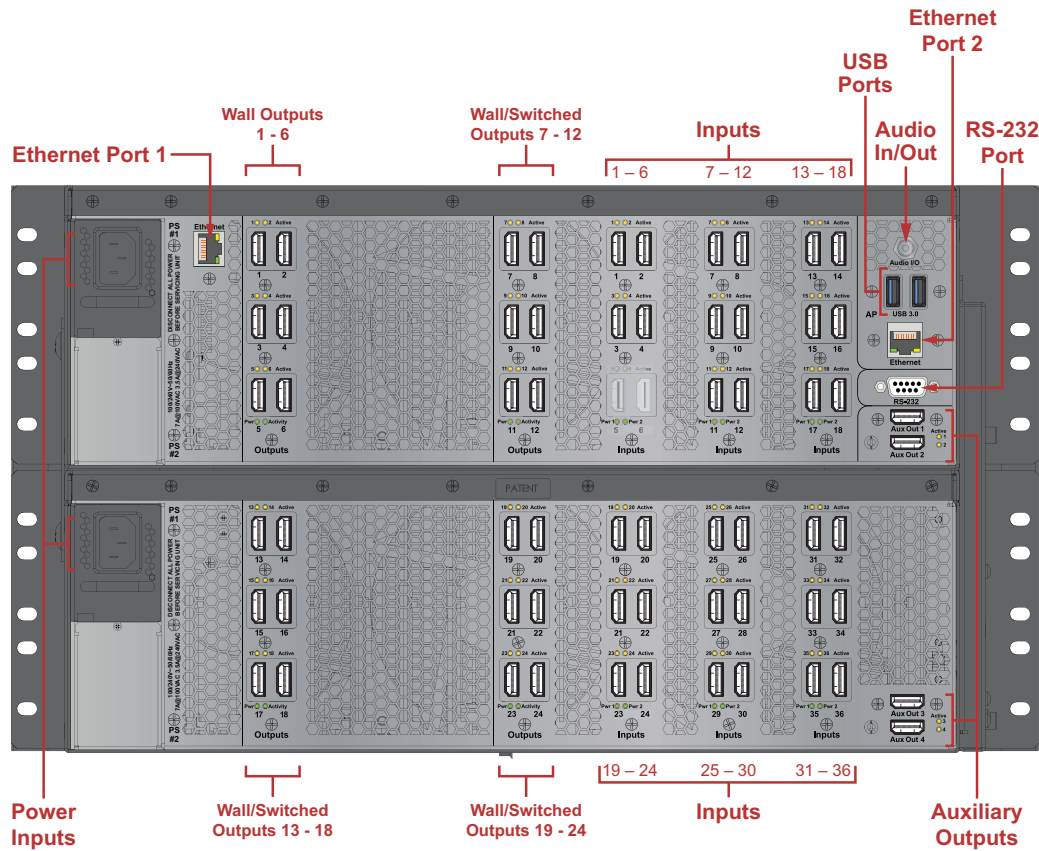


Figure 3-14 MediaWall V Rear View – Model 550 with DisplayPort Output Modules



**Figure 3-15** shows the rear panel of a *MediaWall V Model 550AP-4K* equipped with HDMI Wall and Switched Output Modules.



**Figure 3-15 MediaWall V Rear View – Model 550AP-4K**



### 3.6.1 Video Input Connections

Connect your video sources to the HDMI **Inputs** on the right side of the rear panel.

**Note**

On a *MediaWall V* Model 500AP-4K or Model 550AP-4K, Input 5 is used by the embedded Application Processor (AP).

### 3.6.2 Video Output Connections

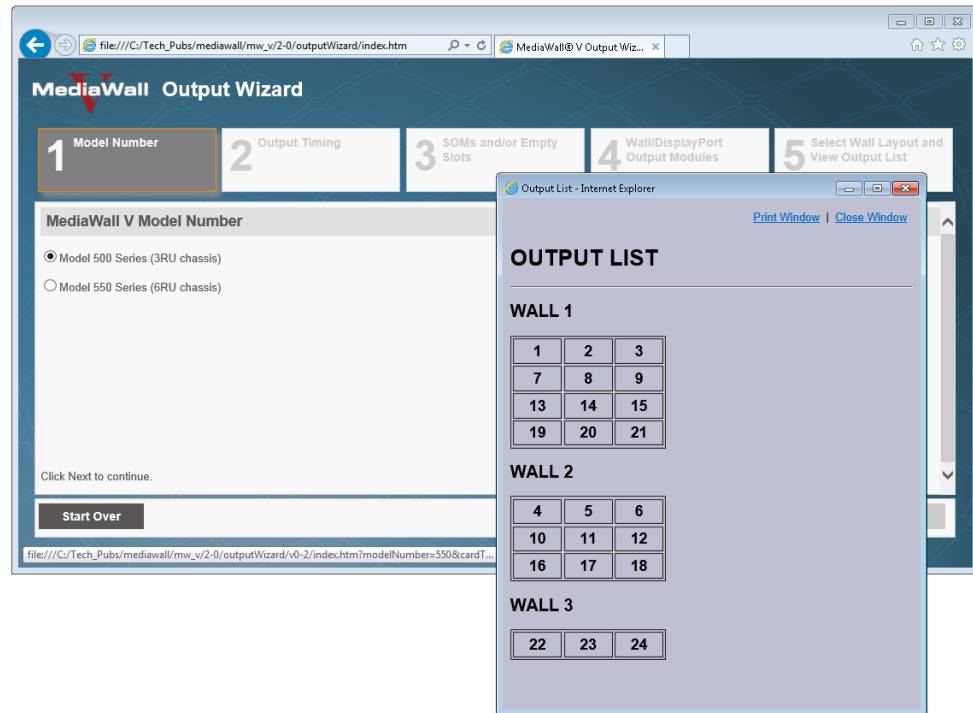
#### WALL OUTPUTS

Connect your wall display devices to the **Wall Outputs** on the left side of the rear panel.

**Use the *MediaWall V* Output Wizard if you are unsure about how to connect your wall displays.**

The *MediaWall V* Output Wizard ([Figure 3-16](#)), included on the *MediaWall V 4K/UHD Display Processor Technical Resources* CD, is a web browser-based tool that provides a customized output list, based on your answers to a few simple questions about your specific installation.

**Tip**



**Figure 3-16** MediaWall V Output Wizard





The manner in which you connect your wall displays depends on four factors:

- ◆ The geometry of your wall(s);
- ◆ The output timing supported by the wall display (2K/HD, 4K/UHD @30Hz, or 4K/UHD @60Hz);
- ◆ The number of HDMI wall outputs in your *MediaWall V*; and
- ◆ The number of DisplayPort wall outputs in your *MediaWall V*.

Generally, you use only the **even-numbered** HDMI wall output ports to connect 4K/UHD display devices.

DisplayPort wall outputs are always **odd-numbered**. With 4K/UHD @30Hz output timing, each DisplayPort output connects to a single display (three displays per DisplayPort Output Module (DOM)).

<b>Examples</b>	Output connections to a 2 × 3 wall, 2K/HD output timing and six HDMI wall outputs:	Output connections to a 2 × 3 wall, 2K/HD output timing and 12 HDMI wall outputs:												
	<table border="1" style="margin: auto;"> <tr><td><b>1</b></td><td><b>2</b></td><td><b>3</b></td></tr> <tr><td><b>4</b></td><td><b>5</b></td><td><b>6</b></td></tr> </table>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<table border="1" style="margin: auto;"> <tr><td><b>1</b></td><td><b>2</b></td><td><b>3</b></td></tr> <tr><td><b>7</b></td><td><b>8</b></td><td><b>9</b></td></tr> </table>	<b>1</b>	<b>2</b>	<b>3</b>	<b>7</b>	<b>8</b>	<b>9</b>
	<b>1</b>	<b>2</b>	<b>3</b>											
	<b>4</b>	<b>5</b>	<b>6</b>											
<b>1</b>	<b>2</b>	<b>3</b>												
<b>7</b>	<b>8</b>	<b>9</b>												
Output connections to a 2 × 3 wall, 4K/UHD @30Hz output timing and 12 HDMI wall outputs:	Output connections to a 2 × 3 wall, 4K/UHD @30Hz output timing and six DisplayPort wall outputs:													
<table border="1" style="margin: auto;"> <tr><td><b>2</b></td><td><b>4</b></td><td><b>6</b></td></tr> <tr><td><b>8</b></td><td><b>10</b></td><td><b>12</b></td></tr> </table>	<b>2</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>10</b>	<b>12</b>	<table border="1" style="margin: auto;"> <tr><td><b>1</b></td><td><b>3</b></td><td><b>5</b></td></tr> <tr><td><b>7</b></td><td><b>9</b></td><td><b>11</b></td></tr> </table>	<b>1</b>	<b>3</b>	<b>5</b>	<b>7</b>	<b>9</b>	<b>11</b>	
<b>2</b>	<b>4</b>	<b>6</b>												
<b>8</b>	<b>10</b>	<b>12</b>												
<b>1</b>	<b>3</b>	<b>5</b>												
<b>7</b>	<b>9</b>	<b>11</b>												

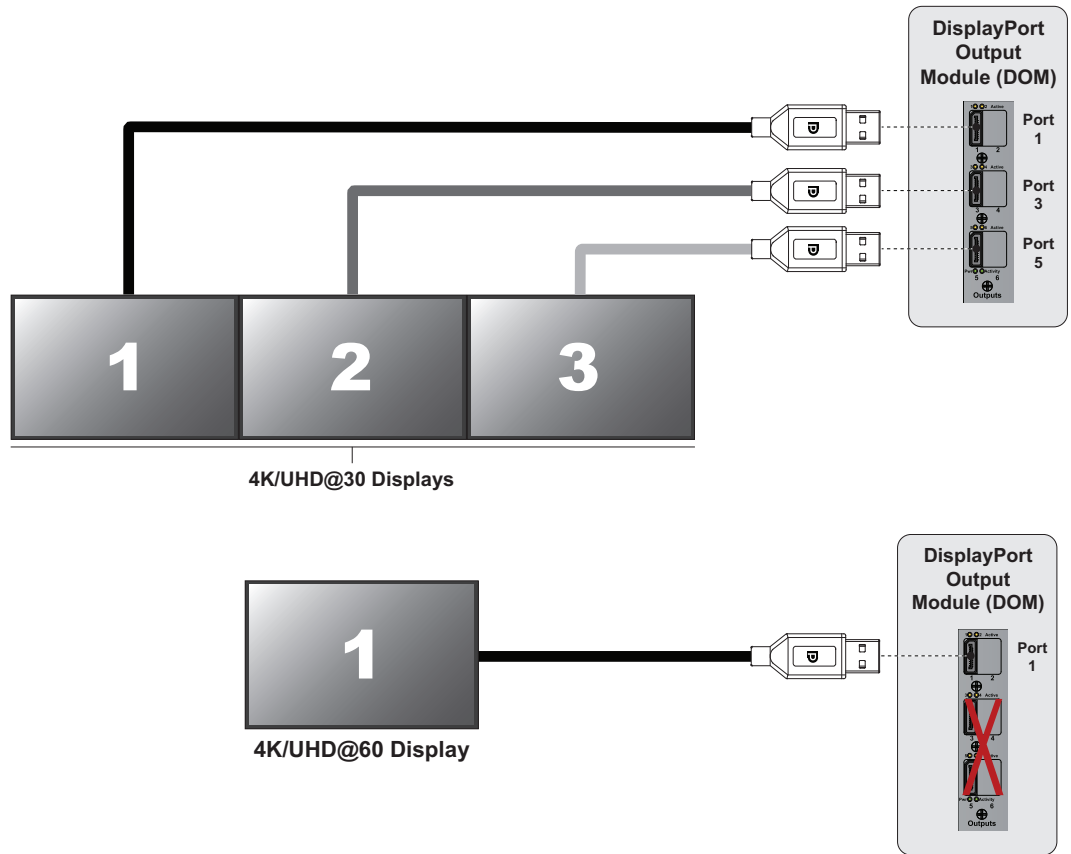
With 4K/UHD @60Hz output timing, only the first DisplayPort output on each DOM is used to connect to a 4K/UHD @60Hz display (the other two outputs are inactive). See [Figure 3-17](#). Only DOM cards support 4K/UHD @60Hz output timing.

Refer to the tables that follow and connect your displays as shown for your wall geometry, display type, and wall output card mix:

- ◆ One WOM or One DOM – [Table 3-1](#)
- ◆ Two WOMs, two DOMs or one of each – [Table 3-2](#)
- ◆ Three WOMs or DOMs in any combination – [Table 3-3](#)
- ◆ Four WOMs or DOMs in any combination – [Table 3-4](#)

**All Wall displays must support the same output timing.**





**Figure 3-17** DisplayPort Output Connections by Output Resolution

**Table 3-1** Output Connections by Wall Geometry and Display Type: One WOM or One DOM

Wall Number	Geometry (Rows × Columns)	Ports Used by Row			
		2K/HD Displays	4K/UHD Displays		
			4K/UHD @ 30 Hz	4K/UHD @ 60 Hz	
1	1 × 6	<b>1</b> <b>2</b> <b>3</b> <b>4</b> <b>5</b> <b>6</b>			
1	1 × 3	<b>1</b> <b>2</b> <b>3</b>	Use the <i>MediaWall V</i> Output Wizard		
1	1 × 1	<b>1</b>		<b>1</b>	
1	1 × 2	<b>1</b> <b>2</b>			
1	1 × 4	<b>1</b> <b>2</b> <b>3</b> <b>4</b>			
1	1 × 5	<b>1</b> <b>2</b> <b>3</b> <b>4</b> <b>5</b>			
1	2 × 1	<b>1</b> <b>4</b>			
1	2 × 2	<b>1</b> <b>2</b> <b>4</b> <b>5</b>			
1	2 × 3	<b>1</b> <b>2</b> <b>3</b> <b>4</b> <b>5</b> <b>6</b>			
1	1 × 3	<b>1</b> <b>2</b> <b>3</b>			
2	1 × 3	<b>4</b> <b>5</b> <b>6</b>			
1	1 × 4	<b>1</b> <b>2</b> <b>3</b> <b>4</b>			
2	1 × 2	<b>5</b> <b>6</b>			
1	1 × 4	<b>1</b> <b>2</b> <b>3</b> <b>4</b>			
2	1 × 1	<b>5</b>			
3	1 × 1	<b>6</b>			
1	1 × 2	<b>1</b> <b>2</b>			
2	1 × 2	<b>3</b> <b>4</b>			
3	1 × 2	<b>5</b> <b>6</b>			

**Table 3-2** Typical Output Connections by Wall Geometry and Display Type: Two WOMs, Two DOMs or One of Each

Wall Number	Geometry (Rows × Columns)	Ports Used by Row														
		2K/HD Displays	4K/UHD Displays													
			4K/UHD @ 30 Hz	4K/UHD @ 60 Hz												
1	2 × 6	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr></table>	1	2	3	4	5	6	7	8	9	10	11	12		
1	2	3	4	5	6											
7	8	9	10	11	12											
1	2 × 3	<table border="1"><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>7</td><td>8</td><td>9</td></tr></table>	1	2	3	7	8	9	Use the <i>MediaWall V</i> Output Wizard							
1	2	3														
7	8	9														
1	2 × 1	<table border="1"><tr><td>1</td></tr><tr><td>7</td></tr></table>	1	7	<table border="1"><tr><td>1</td></tr><tr><td>7</td></tr></table>	1	7									
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1	1 × 1 @7	<table border="1"><tr><td>7</td></tr></table>	7	<table border="1"><tr><td>7</td></tr></table>	7											
7																
7																
1	2 × 2	<table border="1"><tr><td>1</td><td>2</td></tr><tr><td>7</td><td>8</td></tr></table>	1	2	7	8										
1	2															
7	8															
1	2 × 5	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td></tr></table>	1	2	3	4	5	7	8	9	10	11				
1	2	3	4	5												
7	8	9	10	11												
1	3 × 1	<table border="1"><tr><td>1</td></tr><tr><td>4</td></tr><tr><td>7</td></tr></table>	1	4	7											
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4	5															
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1	3 × 3	<table border="1"><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr></table>	1	2	3	4	5	6	7	8	9					
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1	4 × 3	<table border="1"><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr><tr><td>10</td><td>11</td><td>12</td></tr></table>	1	2	3	4	5	6	7	8	9	10	11	12		
1	2	3														
4	5	6														
7	8	9														
10	11	12														

**Note:** For a complete list of available layouts, see [Figure 4-1](#).

**Table 3-2** Typical Output Connections by Wall Geometry and Display Type: Two WOMs, Two DOMs or One of Each (Continued)

Wall Number	Geometry (Rows × Columns)	Ports Used by Row																	
		2K/HD Displays	4K/UHD Displays																
			4K/UHD @ 30 Hz						4K/UHD @ 60 Hz										
1	1 × 12 (2K/HD only)	1	2	3	4	5	6	7	8	9	10	11	12						
1	1 × 6	1	2	3	7	8	9	Use the <i>MediaWall V</i> Output Wizard											
1	3 × 3	1	2	3	4	5	6												
2	1 × 3	10	11	12															
1	1 × 6	1	2	3	4	5	6												
2	1 × 6	7	8	9	10	11	12												
1	2 × 3	1	2	3	7	8	9												
2	2 × 3	4	5	6	10	11	12												
1	2 × 2	1	2	7	8														
2	2 × 2	3	4	9	10														
3	2 × 2	5	6	11	12														
1	1 × 3	1	2	3															
2	1 × 3	7	8	9							Use the <i>MediaWall V</i> Output Wizard								

**Note:** For a complete list of available layouts, see [Figure 4-1](#).

**Table 3-3** Typical Output Connections by Wall Geometry and Display Type: Three WOMs or DOMs in Any Combination

Wall Number	Geometry (Rows × Columns)	Ports Used by Row																				
		2K/HD Displays	4K/UHD Displays																			
			4K/UHD @ 30 Hz	4K/UHD @ 60 Hz																		
1	3 × 6	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr> <tr><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
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7	8	9	10	11	12																	
13	14	15	16	17	18																	
1	3 × 3	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>7</td><td>8</td><td>9</td></tr> <tr><td>13</td><td>14</td><td>15</td></tr> </table>	1	2	3	7	8	9	13	14	15	Use the <i>MediaWall V</i> Output Wizard										
1	2	3																				
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1	3 × 1	<table border="1"> <tr><td>1</td></tr> <tr><td>7</td></tr> <tr><td>13</td></tr> </table>	1	7	13	<table border="1"> <tr><td>1</td></tr> <tr><td>7</td></tr> <tr><td>13</td></tr> </table>	1	7	13													
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13																						
1	2 × 1 @7	<table border="1"> <tr><td>7</td></tr> <tr><td>13</td></tr> </table>	7	13	<table border="1"> <tr><td>7</td></tr> <tr><td>13</td></tr> </table>	7	13															
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4	5	6																				
7	8	9																				
10	11	12																				
13	14	15																				

**Note:** For a complete list of available layouts, see [Figure 4-2](#).

**Table 3-3** Typical Output Connections by Wall Geometry and Display Type: Three WOMs or DOMs in Any Combination (Continued)

Wall Number	Geometry (Rows × Columns)	Ports Used by Row																					
		2K/HD Displays	4K/UHD Displays																				
			4K/UHD @ 30 Hz	4K/UHD @ 60 Hz																			
1	6 × 3	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td></tr> <tr><td>10</td><td>11</td><td>12</td></tr> <tr><td>13</td><td>14</td><td>15</td></tr> <tr><td>16</td><td>17</td><td>18</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
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4	5	6																					
7	8	9																					
10	11	12																					
13	14	15																					
16	17	18																					
1	3 × 3	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>7</td><td>8</td><td>9</td></tr> <tr><td>13</td><td>14</td><td>15</td></tr> </table>	1	2	3	7	8	9	13	14	15												
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2	3 × 3	<table border="1"> <tr><td>4</td><td>5</td><td>6</td></tr> <tr><td>10</td><td>11</td><td>12</td></tr> <tr><td>16</td><td>17</td><td>18</td></tr> </table>	4	5	6	10	11	12	16	17	18												
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11	12																						
17	18																						

**Note:** For a complete list of available layouts, see [Figure 4-2](#).

**Table 3-3** Typical Output Connections by Wall Geometry and Display Type: Three WOMs or DOMs in Any Combination (Continued)

Wall Number	Geometry (Rows × Columns)	Ports Used by Row																					
		2K/HD Displays	4K/UHD Displays																				
			4K/UHD @ 30 Hz	4K/UHD @ 60 Hz																			
1	4 × 3	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td></tr> <tr><td>10</td><td>11</td><td>12</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12									
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1	5 × 3	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td></tr> <tr><td>10</td><td>11</td><td>12</td></tr> <tr><td>13</td><td>14</td><td>15</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15						
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16	17	18																					
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1	2	3																					
7	8	9																					
2	1 × 3	<table border="1"> <tr><td>13</td><td>14</td><td>15</td></tr> </table>	13	14	15																		
13	14	15																					
1	1 × 18 (2K/HD only)	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td></tr> </table>			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18						
1	1 × 9 (2K/HD)	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>7</td><td>8</td><td>9</td><td>13</td><td>14</td><td>15</td></tr> </table>			1	2	3	7	8	9	13	14	15										
	1	2	3	7	8	9	13	14	15														
1 × 9 (4K/UHD @30Hz)	Use the <i>MediaWall V</i> Output Wizard																						

**Note:** For a complete list of available layouts, see [Figure 4-2](#).

**Table 3-4** Typical Output Connections by Wall Geometry and Display Type: Four WOMs or DOMs in Any Combination

Wall Number	Geometry (Rows × Columns)	Ports Used by Row																										
		2K/HD Displays		4K/UHD Displays																								
				4K/UHD @ 30 Hz	4K/UHD @ 60 Hz																							
1	4 × 6	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr> <tr><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td></tr> <tr><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
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1	4 × 3	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>7</td><td>8</td><td>9</td></tr> <tr><td>13</td><td>14</td><td>15</td></tr> <tr><td>19</td><td>20</td><td>21</td></tr> </table>	1	2	3	7	8	9	13	14	15	19	20	21														
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**Note:** For a complete list of available layouts, see [Figure 4-2](#).



**Table 3-4** Typical Output Connections by Wall Geometry and Display Type: Four WOMs or DOMs in Any Combination (Continued)

Wall Number	Geometry (Rows × Columns)	Ports Used by Row																																		
		2K/HD Displays	4K/UHD Displays																																	
			4K/UHD @ 30 Hz					4K/UHD @ 60 Hz																												
1	8 × 3	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td></tr> <tr><td>10</td><td>11</td><td>12</td></tr> <tr><td>13</td><td>14</td><td>15</td></tr> <tr><td>16</td><td>17</td><td>18</td></tr> <tr><td>19</td><td>20</td><td>21</td></tr> <tr><td>22</td><td>23</td><td>24</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24										
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19	20	21																																		
22	23	24																																		
1	1 × 12											Use the <i>MediaWall V</i> Output Wizard																								
1	2 × 10 (2K/HD only)	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	13	14	15	16	17	18	19	20	21	22														
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13	14	15	16	17	18	19	20	21	22																											
1	2 × 12 (2K/HD only)	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr> <tr><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24										
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1	2 × 6											Use the <i>MediaWall V</i> Output Wizard																								
1	4 × 4	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>13</td><td>14</td><td>15</td><td>16</td></tr> <tr><td>19</td><td>20</td><td>21</td><td>22</td></tr> </table>	1	2	3	4	7	8	9	10	13	14	15	16	19	20	21	22																		
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5	6																																			
11	12																																			
17	18																																			
23	24																																			

**Note:** For a complete list of available layouts, see [Figure 4-2](#).

**Table 3-4** Typical Output Connections by Wall Geometry and Display Type: Four WOMs or DOMs in Any Combination (Continued)

Wall Number	Geometry (Rows × Columns)	Ports Used by Row			
		2K/HD Displays	4K/UHD Displays		
			4K/UHD @ 30 Hz	4K/UHD @ 60 Hz	
1	4 × 3	1 2 3			
		7 8 9			
		13 14 15			
		19 20 21			
2	2 × 3	4 5 6			
		10 11 12			
3	2 × 3	16 17 18			
		22 23 24			
1	2 × 6	1 2 3 4 5 6			
		7 8 9 10 11 12			
2	2 × 3	13 14 15			
		19 20 21			
3	2 × 3	16 17 18			
		22 23 24			
1	6 × 3	1 2 3			
		4 5 6			
		7 8 9			
		10 11 12			
		13 14 15			
		16 17 18			
2	2 × 3	19 20 21			
		22 23 24			

**Note:** For a complete list of available layouts, see [Figure 4-2](#).

**Table 3-4** Typical Output Connections by Wall Geometry and Display Type: Four WOMs or DOMs in Any Combination (Continued)

Wall Number	Geometry (Rows × Columns)	Ports Used by Row																	
		2K/HD Displays	4K/UHD Displays																
			4K/UHD @ 30 Hz	4K/UHD @ 60 Hz															
1	5 × 3	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td></tr> <tr><td>10</td><td>11</td><td>12</td></tr> <tr><td>13</td><td>14</td><td>15</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
1	2	3																	
4	5	6																	
7	8	9																	
10	11	12																	
13	14	15																	
2	1 × 3	<table border="1"> <tr><td>16</td><td>17</td><td>18</td></tr> </table>	16	17	18														
16	17	18																	
3	1 × 6	<table border="1"> <tr><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td></tr> </table>	19	20	21	22	23	24											
19	20	21	22	23	24														
1	2 × 6	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12					
1	2	3	4	5	6														
7	8	9	10	11	12														
2	3 × 3	<table border="1"> <tr><td>13</td><td>14</td><td>15</td></tr> <tr><td>19</td><td>20</td><td>21</td></tr> <tr><td>22</td><td>23</td><td>24</td></tr> </table>	13	14	15	19	20	21	22	23	24								
13	14	15																	
19	20	21																	
22	23	24																	
3	1 × 3	<table border="1"> <tr><td>16</td><td>17</td><td>18</td></tr> </table>	16	17	18														
16	17	18																	
1	2 × 3	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>7</td><td>8</td><td>9</td></tr> </table>	1	2	3	7	8	9	Use the <i>MediaWall V</i> Output Wizard										
1	2	3																	
7	8	9																	
2	2 × 3	<table border="1"> <tr><td>13</td><td>14</td><td>15</td></tr> <tr><td>19</td><td>20</td><td>21</td></tr> </table>	13	14	15	19	20	21											
13	14	15																	
19	20	21																	
<b>Note:</b> For a complete list of available layouts, see <a href="#">Figure 4-2</a> .																			

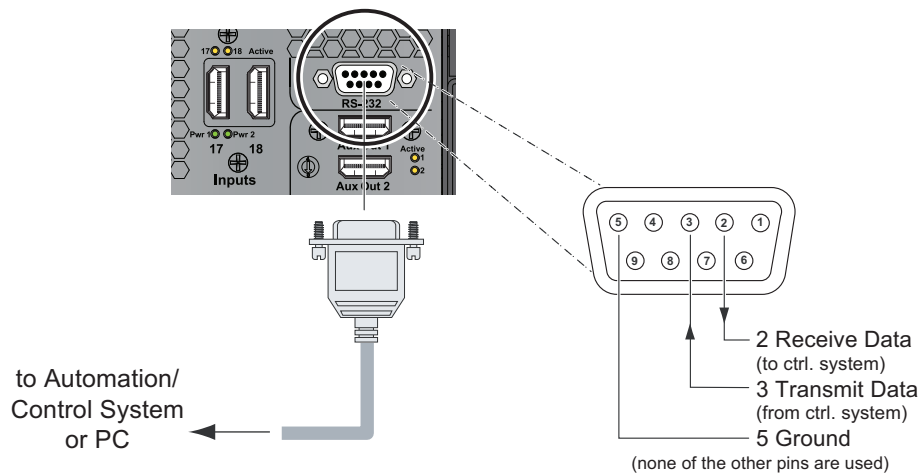


### AUXILIARY AND SWITCHED OUTPUTS

Optionally, connect additional displays or other downstream HDMI devices (such as a digital video recorder) to the **Auxiliary Outputs** on the right side of the rear panel, and/or **Switched Outputs** (if present) on the left side.

### 3.6.3 Control Connections

Connect a PC or other serial control device to the **RS-232 Port**. Use a standard, straight-through serial cable with a 9-pin, male, sub-miniature D connector; see [Figure 3-18](#). Refer to [Serial Control on page 44](#) for setting the communication parameters on the computer or control device.



**Figure 3-18 RS-232 Controller Connection**

The **Ethernet Port (Ethernet Port 1 on a Model 500AP-4K or 550AP-4K)** – next to the top AC power inlet – is the primary interface for control over an IP network. **Do not connect anything to this port yet.** You will connect the *MediaWall V* to a network after you set the IP address, or verify that the default IP address (**192.168.1.200**) will work. Refer to [Ethernet \(Telnet\) Control on page 46](#).

### 3.6.4 Power Connections

Connect the power cord(s) to the AC power inlet(s) on the *MediaWall V* rear panel, and to a reliable power source with a voltage between 100 and 240 VAC. In a *MediaWall V* equipped with optional, redundant power supplies, the *MediaWall V* can remain on when replacing a power supply.



### 3.6.5 Application Processor Connections (Models 500AP-4K and 550AP-4K only)

The *MediaWall V* AP is an embedded, dedicated processor that provides a shared computing resource to *MediaWall V* users for running applications and decoding IP streams.

#### USB CONNECTIONS

Connect the **USB Ports** to a mouse and keyboard for local control of the AP desktop.

#### AUDIO CONNECTION

Connect the **Audio I/O** jack to a pair of powered speakers, headphones, an A/V receiver, microphone, combination microphone/headset, or other audio processing equipment. [Table 3-5](#) provides pinout information for this connector.

**Table 3-5 Audio In/Out Connector Pinouts**

Pin Number	Pin Name	Description
1	Tip	Left Audio Out
2	Ring	Right Audio Out
3	Ring	Common/Ground
4	Sleeve	Audio In

#### SECONDARY NETWORK CONNECTION

**Ethernet Port 2** (above the **RS-232 Port**) is the *MediaWall V* AP network interface. **Do not connect anything to this port yet.** You will connect the AP to a network after you set the IP address, or verify that the default IP address (**192.168.1.201**) will work. Refer to [Configuring the AP Network Interface on page 50](#).

## 3.7 Applying Power to the *MediaWall V*

After you have connected the cables, use the front-panel power switch to turn on the *MediaWall V*.



## 3.8 Selecting a Control Method

To control the *MediaWall V*, you can use the [Command-Line Interface](#), the [MediaWall V Web Interface](#), a Multipoint Control Room Management System (MCMS) control station, or a *VIEW*<sup>™</sup> Controller PC. For more information about using MCMS or *VIEW* Controller with the *MediaWall V*, refer to their respective User's Guides.

### 3.8.1 Command-Line Interface

The command-line interface is available from either the RS-232 serial port or a Telnet session from the Ethernet port.

#### SERIAL CONTROL

Command-line control can be established using the serial port of a PC running a terminal emulator, or a third-party control system.

The *MediaWall V* supports baud rates ranging from 9600 to 115,200; the default setting is 115,200. Proceed as follows to set up communications with the *MediaWall V* through the serial control port.

1. Connect your PC or control system to the *MediaWall V 4K/UHD Display Processor* RS-232 port as shown in [Figure 3-18](#).

#### Note

USB-to-Serial converters are inexpensive and widely available. If necessary, use such an adapter to connect your USB-equipped computer to the *MediaWall* serial port.

2. Set the communications settings of your control device to the following:
  - ◆ Baud rate: 115,200
  - ◆ Data bits: 8
  - ◆ Parity: None
  - ◆ Stop bits: 1
  - ◆ Flow control: XOn / XOff
3. Press Enter (or issue a CR or CRLF). A `user>` prompt should be returned indicating the communications is working.

#### Tip

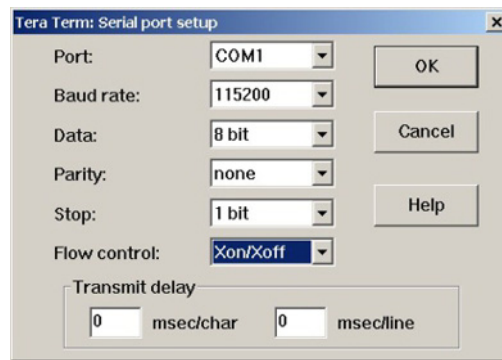
If you are using a terminal, type `help` and press Enter to confirm the serial connection and see a list of commands.

The Tera Term program, provided on the *MediaWall V 4K/UHD Display Processor Technical Resources* CD, may be used for serial control of the *MediaWall V* from a PC.



To use Tera Term for serial control:

1. Launch Tera Term.
2. Select **Serial**.
3. Select the appropriate COM **Port**.
4. Click **OK**.
5. From the **Setup** menu, select **Serial Port....**
6. Set the serial port parameters as shown in [Figure 3-19](#).



**Figure 3-19** Tera Term Serial Port Control

7. Click **OK**. The terminal window is now ready for command control.
8. Press Enter. A `user>` prompt should be returned indicating the communications is working.
9. From the **Setup** menu, select **Terminal....**
10. In the **New-line** group, set **Receive:** and **Transmit:** to **AUTO** and **CR** respectively. (If the **AUTO** setting is not available, set the **Receive:** new-line character to **CR**.)
11. Clear the **Local echo** check box.
12. Click **OK**.

For details on how to change the baud rate or other serial communications settings on the *MediaWall V*, refer to [System Commands](#) in [Chapter 5](#).



## ETHERNET (TELNET) CONTROL

Command-line control over Ethernet is possible by establishing a Telnet session. The *MediaWall V 4K/UHD Display Processor* can be connected to a control device either directly or through a network.

**Table 3-6 Configurations for Direct and Network Connections**

Connection	Cabling	<i>MediaWall V 4K/UHD Display Processor</i>	PC/Controller
Direct	Standard Ethernet cable.	Use the default IP address or assign a new address.	Assign a fixed IP address compatible with the network address of the <i>MediaWall V 4K/UHD Display Processor</i> .
Network		Change the IP address from the default to suit the network (consult your network administrator).	Use a dynamic or fixed IP address to suit the network.

### Important

The *MediaWall V* is configured at the factory to have the default, static IP address **192.168.1.200**. Consult your network administrator to obtain a valid IP address before starting the network setup procedure.

You may need to change the *MediaWall V* IP address before putting it on the network. To do this, use the [IPADDRESS](#) command from either the serial port or using a direct connection to the Ethernet port.

Computers that are set up to communicate on a network are typically configured to have a dynamic IP address. In this configuration, the computer is provided with a suitable IP address by a DHCP server connected to the network.

If you connect directly to the *MediaWall V 4K/UHD Display Processor*, a DHCP server is not available and you must set the IP address on your computer manually. This is known as a static IP address. Refer to the network settings help section of your computer operating system (OS) for assistance with setting a static IP address on your computer.

An IP address is composed of two parts known as the network ID and the host ID. The default network ID for the *MediaWall V* is 192.168.1 and the default host ID is 200 (192.168.1.200). The control computer should be assigned an IP address with the same network ID as the *MediaWall V*, but a different host ID (for example, 192.168.1.199).





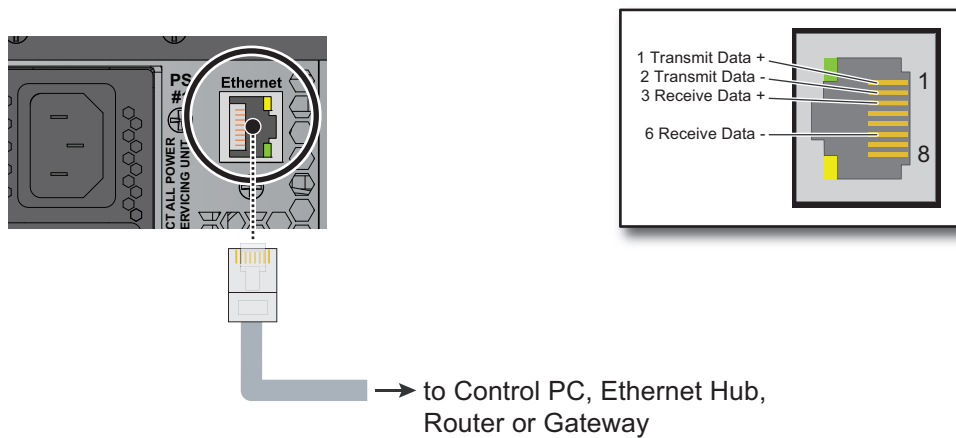
You can use Tera Term for Telnet control of the *MediaWall V*. To set up communications with the *MediaWall V 4K/UHD Display Processor* through the Ethernet port using Tera Term:

1. Connect the *MediaWall V* Ethernet port to the network using a standard Ethernet cable;

— OR —

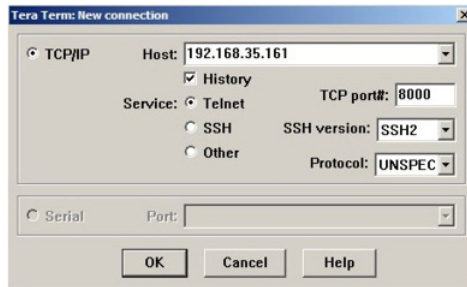
Connect the *MediaWall V* Ethernet port directly to the control PC.

See [Figure 3-20](#).



**Figure 3-20** Connecting the MediaWall V to a Network

2. Launch Tera Term.

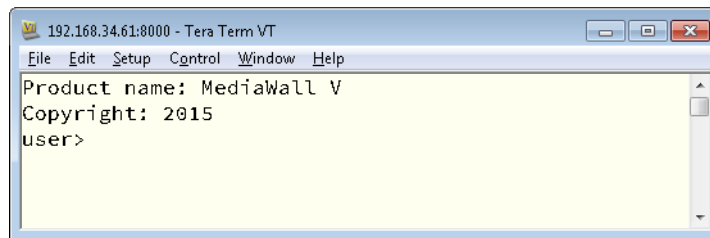


**Figure 3-21** Initializing Telnet on Tera Term

3. Select **TCP/IP** and enter the IP address of the *MediaWall V*.
4. Select the **Telnet Service**.
5. Enter **8000** for the **TCP port#**. (To change this port number at a later time, use the [IPCoMmandPort](#) command.)



6. Click **OK**. The terminal window will open displaying the *MediaWall V* name, copyright date, and a `user>` prompt.
7. From the **Setup** menu, select **Terminal...**
8. In the **New-line** group, set **Receive:** and **Transmit:** to **AUTO** and **CR** respectively. (If the **AUTO** setting is not available, set the **Receive:** new-line character to **LF**.)
9. Clear the **Local echo** check box.
10. Click **OK**.



**Figure 3-22** Telnet Prompt

You can now send commands to the *MediaWall V*.

### 3.8.2 *MediaWall V* Web Interface

The *MediaWall V* Web Interface provides a visual alternative to the command-line interface for configuration and control. The *MediaWall V* Web Interface is available only from the Ethernet port.

For more information on using the *MediaWall V* Web Interface, refer to the *MediaWall V 4K/UHD Display Processor User's Guide*.



### 3.9 Using the Application Processor (AP) (Models 500AP-4K and 550AP-4K only)

This section provides general information and guidelines for using the AP.

The *MediaWall V* AP turns on and starts Windows automatically when the display processor is turned on. RGB Spectrum factory-configures the default Computer Name, User Name, and Password as follows:

- Computer Name: **MediaWall\_V\_PC**
- User Name: **MediaWall\_V**
- Password: (no password)

#### Important

**Do not make changes to the AP hardware and software environment, unless specifically instructed to do so by RGB Spectrum Technical Support.**

Unlike a conventional, general-purpose PC, the *MediaWall V* AP is a purpose-built appliance intended for two specific uses: running applications and decoding IP streams. RGB Spectrum has carefully chosen and thoroughly tested the AP hardware and software to work together to perform these tasks optimally.

To ensure that the AP's performance is not compromised in the future by incompatible software, **do NOT do any of the following:**

- Update device drivers;
- Change BIOS settings;
- Enable automatic Windows updates;
- Update VLC Media Player to a newer version; or
- Upgrade Windows 7 to a newer version.



### 3.9.1 Enabling Remote Desktop Connections to the AP

You or someone you choose can access the *MediaWall V* AP from a remote computer, but first you need to establish local control of the AP, configure the AP network interface, connect it to a network, and allow remote connections.

#### ESTABLISHING LOCAL CONTROL OF THE AP

1. From another computer running the *MediaWall V* Web Interface or using the *MediaWall V* command-line interface, route Input 5 to an Auxiliary Output (for example, `auxout 1 5`) or a Switched Output (for example, `swout 7 5`).
2. Connect a display to the Auxiliary or Switched Output to which you routed Input 5 in Step 1.
3. Connect a mouse and keyboard to the USB ports on the *MediaWall V* rear panel, if you have not already done so.

#### CONFIGURING THE AP NETWORK INTERFACE

##### Important

The *MediaWall V* AP is configured at the factory to have the default, static IP address **192.168.1.201**. Consult your network administrator to obtain a valid IP address before starting the network setup procedure.

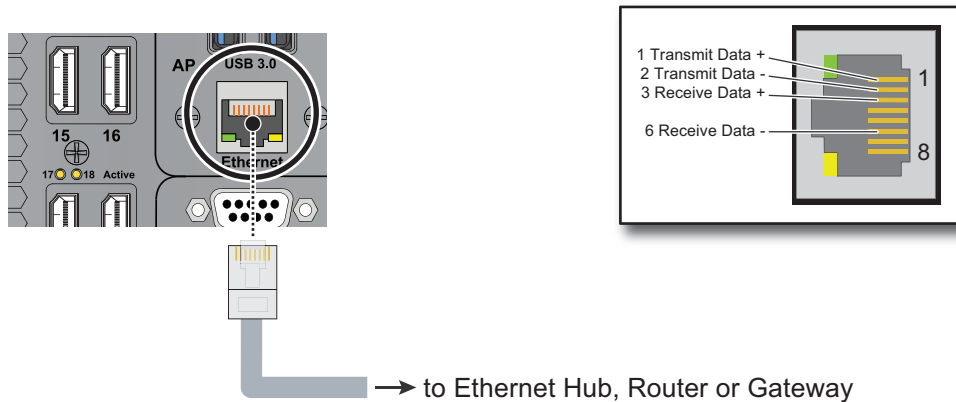
If you need to change the AP network settings before putting it on the network, follow these steps:

1. From the AP desktop, choose **Start > Control Panel > Network and Internet > Network and Sharing Center**.
2. Click **Change Adapter Settings**.
3. Right-click **Local Area Connection** and select **Properties**.
4. Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.
5. Set the **IP address**, **Subnet mask**, **Default gateway**, and **DNS server** addresses as instructed by your network administrator.
6. Click **OK**.
7. Click **Close**.



## CONNECTING THE AP TO A NETWORK

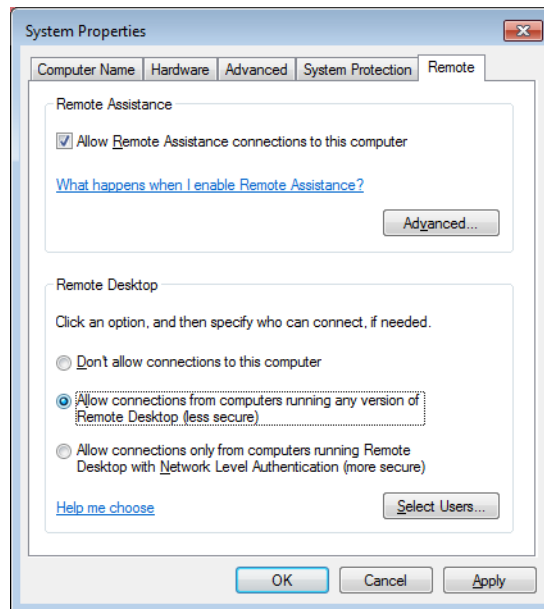
Connect the AP Ethernet port to the network using a standard Ethernet cable. See [Figure 3-23](#).



**Figure 3-23** Connecting the AP to a Network

## GRANTING REMOTE ACCESS PRIVILEGES TO USERS

1. From the AP desktop, choose **Start > Control Panel > System**.
2. In the left pane, click **Remote settings**. Administrator permission is required. If **User Account Control** asks for confirmation that you want to change these settings, click **Yes** to provide it.
3. Under **Remote Desktop**, select one of the options to allow connections.



4. Click **Select Users....**



5. In the **Remote Desktop Users** dialog box, click **Add**.
6. In the **Select Users or Groups** dialog box, do one or more of the following:
  - ◆ To specify the search location, click **Locations**.
  - ◆ To specify the types of objects (user names) that you want to search for, click **Object Types**.
  - ◆ In the **Enter the object names to select** box, type the user name that you want to search for, and then click **Check Names**. If the user name isn't found, click **Advanced** to run an advanced search.
7. When you find the correct name, click **OK**. The name will be displayed in the list of users in the **Remote Desktop Users** dialog box.
8. Click **OK**, and then click **OK** again.

### 3.9.2 Windows Firewall Settings for UDP Media Streaming

#### Important

For multicast streaming to work properly, your network infrastructure must be configured to allow multicast traffic on the network. Please consult with your IT department to confirm this configuration. Generally, this requires the use of managed network switches and/or routers to support this capability.

Most network switches, such as the Dell™ PowerConnect™ series, can be configured to enable or disable multicast traffic.

You cannot operate a multicast stream over a crossover cable or unmanaged network switch. In such cases, multicast stream decoding with a software decoder such as VLC Media Player will begin but will either stop after a few seconds or will stutter. Unicast streaming will work fine with these types of networks.

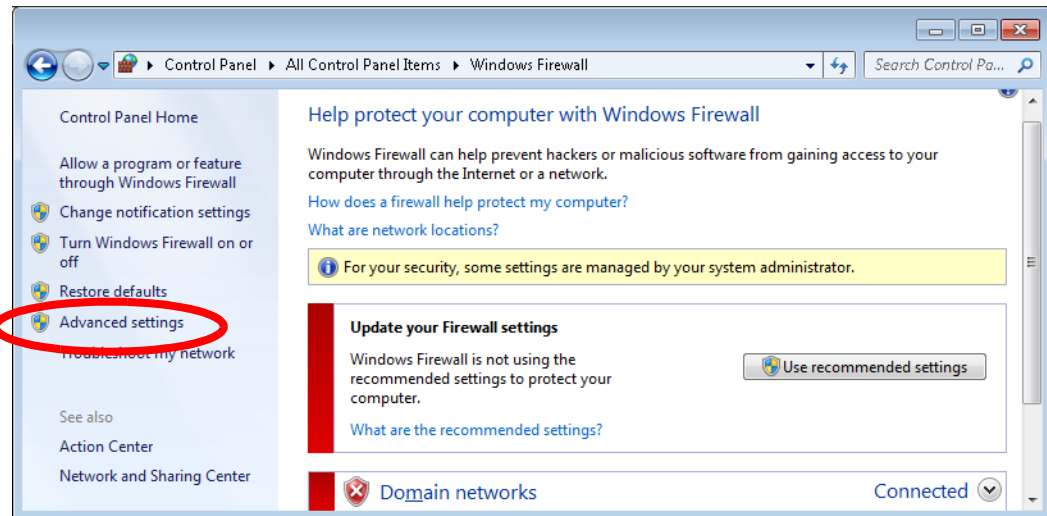
The *MediaWall V* AP can decode and display multiple IP video streams simultaneously, using VLC® Media Player®. VLC supports all common network protocols for streaming media, including UDP, RTSP, and many others.

In order to receive a UDP network stream, it may be necessary to change the Windows Firewall settings on the AP to allow VLC to accept incoming UDP connections. To do this:

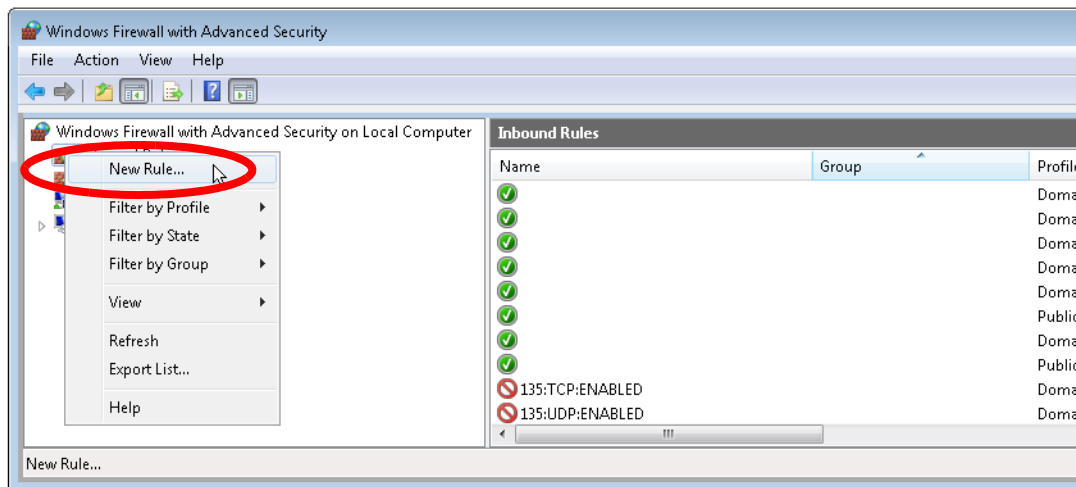
1. From the Windows **Start** Menu, choose **Control Panel**.
2. If your Control Panel is in "Category" view, select the **System and Security** category.
3. Select **Windows Firewall**.



4. On the left-hand side menu, select **Advanced Settings**.

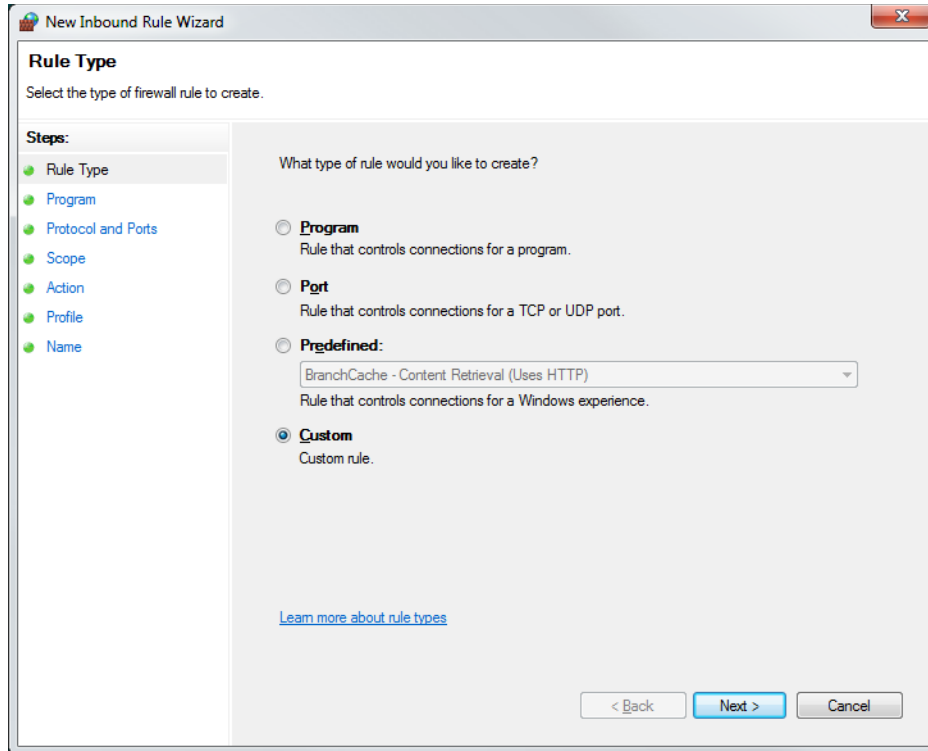


5. Another window opens, titled **Windows Firewall with Advanced Security**.
6. On the left-hand side, under the heading **Windows Firewall with Advanced Security on Local Computer**, click **Inbound Rules**.
7. Right-click **Inbound Rules** and select **New Rule...**





- On the first screen of the **New Inbound Rule Wizard**, select **Custom** as the type of rule to create.



- Click **Next**.
- Select **This Program Path** and browse to, or type, the installation directory of VLC Media Player: **C:\Program Files\VideoLAN\VLC\vlc.exe**.
- Click **Next**.
- Set the **Protocol type** to **UDP**.
- For **Local port**, select **All Ports**;  
– OR –  
If you know which port numbers are used by stream originator to send network streams, select **Specific Ports**. Then, in the text field just below, enter those port numbers (for example, **1234,5000-5010,50000-50004,56000**).
- For **Remote port**, select **All ports**.
- Click **Next**.
- Select **Any IP address** for both the **local IP addresses** and the **remote IP addresses**.
- Click **Next**.
- Select **Allow the connection**.





19. Click **Next**.
20. Check the **Domain** and **Private** boxes. Un-check the **Public** box.
21. Click **Next**.
22. Give a name to this Firewall rule; for example, **VLC Media Player (UDP-In)**.
23. Click **Finish**.

This will allow the AP to receive UDP network streams from all devices on the local network or domain.

# CHAPTER 4

# COMMAND LINE CONTROL

This chapter provides an overview of the *MediaWall V 4K/UHD Display Processor* command-line interface, which is accessible from the RS-232 or Ethernet port. The command-line interface allows an automation/control system or PC running terminal emulation software to control the *MediaWall V*.

## Note

Most examples in this chapter have [hyperlinks](#) that take you directly to the description of the command in [Chapter 5](#).

The *MediaWall V 4K/UHD Display Processor* accepts ASCII commands. The majority of commands can be used to both set a parameter and query the current parameter value. This combination provides a convenient way to test commands using keyboard entry.

## Note

In the following examples, for simplicity, the Carriage Return (Enter on a PC keyboard) that is required to terminate each command is not shown. Be sure to terminate each command by pressing Enter.

Refer to [Chapter 5](#) for a full discussion of command syntax and a complete description of all available commands.



## 4.1 Command-Line Interface Access Control

To prevent unauthorized persons from changing certain operating parameters, the *MediaWall V* command-line interface provides two access levels: **administrator** and **user**. When you start a command-line session, you are in **user** mode, as indicated by the `user>` prompt.

```
Product name: MediaWall V
Copyright: 2015
user>
```

When you enter **administrator** mode and provide the administrator password, full control over the system is possible. In **user** mode, only a subset of the administrator command set is available. For example, in user mode, you cannot change the wall layout or network settings, nor can you restore factory-default settings to the system or update firmware.

### 4.1.1 Entering Administrator Mode

To enter Administrator mode, use the [ADMINENTER](#) command.

You will be prompted for the administrator password. The default administrator password is **RGB** (upper-case). (To change it, use the [ADMINPASSWD](#) command.)

### 4.1.2 Exiting Administrator Mode

To exit Administrator mode, use the [ADMINEXIT](#) command. This returns the session to user mode.

## 4.2 Initial Setup

### Tip

Consider using the *MediaWall V* Web Interface instead of the command line interface to perform these initial wall and output configuration tasks. The *MediaWall V* Web Interface provides a graphical user interface to virtually all *MediaWall V* functionality. For more information on using the *MediaWall V* Web Interface, refer to the *MediaWall V 4K/UHD Display Processor User's Guide*.

Setting up a *MediaWall V 4K/UHD Display Processor* for the first time involves the following tasks:

1. [Choosing a Wall Layout](#)
2. [Choosing an Output Timing Reference](#)
3. [Creating a Window and Choosing a Window Source](#)
4. [Compensating for Mullions or Configuring Overlapping Outputs](#)



## 4.2.1 Choosing a Wall Layout

To begin configuring your wall, follow the steps for [Entering Administrator Mode](#). Then, use the `WALLLAYOUTLIST` command to see a list of available wall layouts. Each layout list entry shows the following information:

- The number of walls defined in that layout;
- The geometry and anchor output number (the one connected to the top-left display, following the @ symbol) for each wall in the layout; and
- 4K/UHD output timings supported by the layout.

The layout list contents vary, depending on the wall output type and count for your *MediaWall V* system, as shown in [Figure 4-1](#) and [Figure 4-2](#).

### One WOM

```
admin>walllayoutlist
```

NUM	# WALLS	WALL 1	WALL 2	WALL 3	4Kp30	4Kp60	MST
1	1	1x 6 @ 1	-	-	n	n	1
2	1	1x 3 @ 1	-	-	y	n	
3	1	1x 1 @ 1	-	-	y	y	
4	1	1x 2 @ 1	-	-	y	n	
5	1	1x 4 @ 1	-	-	n	n	1
6	1	1x 5 @ 1	-	-	n	n	1
7	1	2x 1 @ 1	-	-	n	n	
8	1	2x 2 @ 1	-	-	n	n	
9	1	2x 3 @ 1	-	-	n	n	
10	2	1x 3 @ 1	1x 3 @ 4	-	n	n	1 2
11	2	1x 4 @ 1	1x 2 @ 5	-	n	n	1 2
12	3	1x 4 @ 1	1x 1 @ 5	1x 1 @ 6	n	n	1 2 3
13	3	1x 2 @ 1	1x 2 @ 3	1x 2 @ 5	n	n	1 2 3

### One DOM

```
admin>walllayoutlist
```

NUM	# WALLS	WALL 1	WALL 2	WALL 3	4Kp30	4Kp60	MST
2	1	1x 3 @ 1	-	-	y	n	
3	1	1x 1 @ 1	-	-	y	y	
4	1	1x 2 @ 1	-	-	y	n	

**Figure 4-1** WALLLAYOUTLIST Command Output – Model 500 Series



Two WOMs

```
admin> walllayoutlist
NUM | # WALLS | WALL 1 | WALL 2 | WALL 3 | 4Kp30 | 4Kp60 | MST
-----+-----+-----+-----+-----+-----+-----+-----
 1 | 1 | 2x 6 @ 1 | - | - | n | n | 1
 2 | 1 | 2x 3 @ 1 | - | - | Y | n |
 3 | 1 | 2x 1 @ 1 | - | - | Y | Y |
 4 | 1 | 1x 1 @ 7 | - | - | Y | Y |
 5 | 1 | 1x 1 @ 1 | - | - | Y | Y |
 6 | 1 | 1x 2 @ 1 | - | - | Y | n |
 7 | 1 | 1x 3 @ 1 | - | - | Y | n |
 8 | 1 | 1x 4 @ 1 | - | - | n | n | 1
 9 | 1 | 1x 5 @ 1 | - | - | n | n | 1
10 | 1 | 1x 6 @ 1 | - | - | n | n | 1
11 | 1 | 2x 2 @ 1 | - | - | Y | n |
12 | 1 | 2x 4 @ 1 | - | - | n | n | 1
13 | 1 | 2x 5 @ 1 | - | - | n | n | 1
14 | 1 | 3x 1 @ 1 | - | - | n | n | 1
15 | 1 | 3x 2 @ 1 | - | - | n | n | 1
16 | 1 | 3x 3 @ 1 | - | - | n | n | 1
17 | 1 | 4x 1 @ 1 | - | - | n | n | 1
18 | 1 | 4x 2 @ 1 | - | - | n | n | 1
19 | 1 | 4x 3 @ 1 | - | - | n | n | 1
20 | 1 | 1x12 @ 1 | - | - | n | n | 1
21 | 1 | 1x 6 @ 1 | - | - | Y | n |
22 | 2 | 3x 3 @ 1 | 1x 3 @10 | - | n | n | 1 2
23 | 2 | 1x 6 @ 1 | 1x 6 @ 7 | - | n | n | 1 2
24 | 2 | 2x 3 @ 1 | 2x 3 @ 4 | - | n | n | 1 2
25 | 2 | 2x 4 @ 1 | 2x 2 @ 5 | - | n | n | 1 2
26 | 3 | 2x 2 @ 1 | 2x 2 @ 3 | 2x 2 @ 5 | n | n | 1 2 3
27 | 2 | 1x 3 @ 1 | 1x 3 @ 7 | - | Y | n |
```

Two DOMs, or One WOM and One DOM

```
admin> walllayoutlist
NUM | # WALLS | WALL 1 | WALL 2 | WALL 3 | 4Kp30 | 4Kp60 | MST
-----+-----+-----+-----+-----+-----+-----+-----
 2 | 1 | 2x 3 @ 1 | - | - | Y | n |
 3 | 1 | 2x 1 @ 1 | - | - | Y | Y |
 4 | 1 | 1x 1 @ 7 | - | - | Y | Y |
 5 | 1 | 1x 1 @ 1 | - | - | Y | Y |
 6 | 1 | 1x 2 @ 1 | - | - | Y | n |
 7 | 1 | 1x 3 @ 1 | - | - | Y | n |
11 | 1 | 2x 2 @ 1 | - | - | Y | n |
21 | 1 | 1x 6 @ 1 | - | - | Y | n |
27 | 2 | 1x 3 @ 1 | 1x 3 @ 7 | - | Y | n |
```

**Figure 4-1 WALLLAYOUTLIST Command Output – Model 500 Series (Continued)**



Three WOMs

```
admin> walllayoutlist
```

NUM	# WALLS	WALL 1	WALL 2	WALL 3	4Kp30	4Kp60	MST
1	1	3x 6 @ 1	-	-	n	n	1
2	1	3x 3 @ 1	-	-	y	n	1
3	1	3x 1 @ 1	-	-	y	y	
4	1	1x 1 @13	-	-	y	y	
5	1	2x 1 @ 7	-	-	y	y	
6	1	1x 1 @ 1	-	-	y	y	
7	1	1x 2 @ 1	-	-	y	n	
8	1	1x 3 @ 1	-	-	y	n	
9	1	1x 4 @ 1	-	-	n	n	1
10	1	1x 5 @ 1	-	-	n	n	1
11	1	1x 6 @ 1	-	-	n	n	1
12	1	2x 1 @ 1	-	-	y	y	
13	1	2x 2 @ 1	-	-	y	n	
14	1	2x 3 @ 1	-	-	y	n	
15	1	2x 4 @ 1	-	-	n	n	1
16	1	2x 5 @ 1	-	-	n	n	1
17	1	2x 6 @ 1	-	-	n	n	1
18	1	3x 2 @ 1	-	-	y	n	
19	1	3x 4 @ 1	-	-	n	n	1
20	1	3x 5 @ 1	-	-	n	n	1
21	1	4x 1 @ 1	-	-	n	n	1
22	1	4x 2 @ 1	-	-	n	n	1
23	1	4x 3 @ 1	-	-	n	n	1
24	1	5x 1 @ 1	-	-	n	n	1
25	1	5x 2 @ 1	-	-	n	n	1
26	1	5x 3 @ 1	-	-	n	n	1
27	1	6x 1 @ 1	-	-	n	n	1
28	1	6x 2 @ 1	-	-	n	n	1
29	1	6x 3 @ 1	-	-	n	n	1
30	1	1x18 @ 1	-	-	n	n	1
31	1	1x 9 @ 1	-	-	y	n	
32	2	3x 3 @ 1	3x 3 @ 4	-	n	n	1 2
33	2	3x 4 @ 1	3x 2 @ 5	-	n	n	1 2
34	2	2x 6 @ 1	1x 6 @13	-	n	n	1 2
35	3	3x 2 @ 1	3x 2 @ 3	3x 2 @ 5	n	n	1 2 3
36	3	3x 3 @ 1	2x 3 @ 4	1x 3 @16	n	n	1 2 3
37	3	3x 4 @ 1	2x 2 @ 5	1x 2 @17	n	n	1 2 3
38	2	4x 3 @ 1	2x 3 @13	-	n	n	1 2
39	2	5x 3 @ 1	1x 3 @16	-	n	n	1 2
40	3	2x 3 @ 1	2x 3 @ 4	2x 3 @13	n	n	1 2 3
41	2	2x 3 @ 1	1x 3 @13	-	y	n	1 2

**Note:** For a *MediaWall V* Model 550 Series with two or three Switched Output cards, see [Figure 4-1](#).

**Figure 4-2 WALLLAYOUTLIST Command Output – Model 550 Series**



Three DOMs or WOMs in Any Combination

NUM	# WALLS	WALL 1	WALL 2	WALL 3	4Kp30	4Kp60	MST
2	1	3x 3 @ 1	-	-	y	n	1
3	1	3x 1 @ 1	-	-	y	y	
4	1	1x 1 @13	-	-	y	y	
5	1	2x 1 @ 7	-	-	y	y	
6	1	1x 1 @ 1	-	-	y	y	
7	1	1x 2 @ 1	-	-	y	n	
8	1	1x 3 @ 1	-	-	y	n	
12	1	2x 1 @ 1	-	-	y	y	
13	1	2x 2 @ 1	-	-	y	n	
14	1	2x 3 @ 1	-	-	y	n	
18	1	3x 2 @ 1	-	-	y	n	
31	1	1x 9 @ 1	-	-	y	n	
41	2	2x 3 @ 1	1x 3 @13	-	y	n	1 2

**Note:** For a *MediaWall V* Model 550 Series with two or three Switched Output cards, see [Figure 4-1](#).

**Figure 4-2 WALLLAYOUTLIST Command Output – Model 550 Series (Continued)**



Four WOMs

NUM	# WALLS	WALL 1	WALL 2	WALL 3	4Kp30	4Kp60	MST
1	1	4x 6 @ 1	-	-	n	n	1
2	1	4x 3 @ 1	-	-	y	n	
3	1	4x 1 @ 1	-	-	y	y	
4	1	1x 1 @19	-	-	y	y	
5	1	2x 1 @13	-	-	y	y	
6	1	3x 1 @ 7	-	-	y	y	
7	1	1x 1 @ 1	-	-	y	y	
8	1	1x 2 @ 1	-	-	y	n	
9	1	1x 3 @ 1	-	-	y	n	
10	1	1x 4 @ 1	-	-	n	n	1
11	1	1x 5 @ 1	-	-	n	n	1
12	1	1x 6 @ 1	-	-	n	n	1
13	1	2x 1 @ 1	-	-	y	y	
14	1	2x 2 @ 1	-	-	y	n	
15	1	2x 3 @ 1	-	-	y	n	
16	1	2x 4 @ 1	-	-	n	n	1
17	1	2x 5 @ 1	-	-	n	n	1
18	1	2x 6 @ 1	-	-	n	n	1
19	1	3x 1 @ 1	-	-	y	y	
20	1	3x 2 @ 1	-	-	y	n	
21	1	3x 3 @ 1	-	-	y	n	
22	1	3x 4 @ 1	-	-	n	n	1
23	1	3x 5 @ 1	-	-	n	n	1
24	1	3x 6 @ 1	-	-	n	n	1
25	1	4x 2 @ 1	-	-	y	n	
26	1	4x 4 @ 1	-	-	n	n	1
27	1	4x 5 @ 1	-	-	n	n	1
28	1	5x 1 @ 1	-	-	n	n	1
29	1	5x 2 @ 1	-	-	n	n	1
30	1	5x 3 @ 1	-	-	n	n	1
31	1	6x 1 @ 1	-	-	n	n	1
32	1	6x 2 @ 1	-	-	n	n	1
33	1	6x 3 @ 1	-	-	n	n	1
34	1	7x 1 @ 1	-	-	n	n	1
35	1	7x 2 @ 1	-	-	n	n	1
36	1	7x 3 @ 1	-	-	n	n	1
37	1	8x 1 @ 1	-	-	n	n	1
38	1	8x 2 @ 1	-	-	n	n	1
39	1	8x 3 @ 1	-	-	n	n	1
40	1	1x24 @ 1	-	-	n	n	1
41	1	1x12 @ 1	-	-	y	n	
42	1	2x 8 @ 1	-	-	n	n	1
43	1	2x10 @ 1	-	-	n	n	1
44	1	2x12 @ 1	-	-	n	n	1
45	1	2x 6 @ 1	-	-	y	n	
46	2	4x 3 @ 1	4x 3 @ 4	-	n	n	1 2
47	2	4x 4 @ 1	4x 2 @ 5	-	n	n	1 2
48	2	2x 6 @ 1	2x 6 @13	-	n	n	1 2

Note: For a MediaWall V Model 550 Series with two or three Switched Output cards, see [Figure 4-1](#).

Figure 4-2 WALLLAYOUTLIST Command Output – Model 550 Series (Continued)





Four WOMs (Continued)

NUM	# WALLS	WALL 1	WALL 2	WALL 3	4Kp30	4Kp60	MST
49	2	3x 6 @ 1	1x 6 @19	-	n	n	1 2
50	3	4x 2 @ 1	4x 2 @ 3	4x 2 @ 5	n	n	1 2 3
51	3	4x 3 @ 1	2x 3 @ 4	2x 3 @16	n	n	1 2 3
52	3	4x 3 @ 1	3x 3 @ 4	1x 3 @22	n	n	1 2 3
53	3	4x 4 @ 1	2x 2 @ 5	2x 2 @17	n	n	1 2 3
54	3	4x 4 @ 1	3x 2 @ 5	1x 2 @23	n	n	1 2 3
55	3	2x 6 @ 1	2x 3 @13	2x 3 @16	n	n	1 2 3
56	3	3x 6 @ 1	1x 3 @19	1x 3 @22	n	n	1 2 3
57	2	2x 6 @ 1	4x 3 @13	-	n	n	1 2
58	2	6x 3 @ 1	2x 3 @19	-	n	n	1 2
59	2	6x 3 @ 1	1x 6 @19	-	n	n	1 2
60	3	6x 3 @ 1	1x 3 @19	1x 3 @22	n	n	1 2 3
61	3	5x 3 @ 1	1x 3 @16	1x 6 @19	n	n	1 2 3
62	3	2x 6 @ 1	3x 3 @13	1x 3 @16	n	n	1 2 3
63	2	2x 3 @ 1	2x 3 @13	-	y	n	1 2 3

Four DOMs or WOMs in Any Combination

NUM	# WALLS	WALL 1	WALL 2	WALL 3	4Kp30	4Kp60	MST
2	1	4x 3 @ 1	-	-	y	n	
3	1	4x 1 @ 1	-	-	y	y	
4	1	1x 1 @19	-	-	y	y	
5	1	2x 1 @13	-	-	y	y	
6	1	3x 1 @ 7	-	-	y	y	
7	1	1x 1 @ 1	-	-	y	y	
8	1	1x 2 @ 1	-	-	y	n	
9	1	1x 3 @ 1	-	-	y	n	
13	1	2x 1 @ 1	-	-	y	y	
14	1	2x 2 @ 1	-	-	y	n	
15	1	2x 3 @ 1	-	-	y	n	
19	1	3x 1 @ 1	-	-	y	y	
20	1	3x 2 @ 1	-	-	y	n	
21	1	3x 3 @ 1	-	-	y	n	
25	1	4x 2 @ 1	-	-	y	n	
41	1	1x12 @ 1	-	-	y	n	
45	1	2x 6 @ 1	-	-	y	n	
63	2	2x 3 @ 1	2x 3 @13	-	y	n	1 2 3

**Note:** For a *MediaWall V* Model 550 Series with two or three Switched Output cards, see [Figure 4-1](#).

**Figure 4-2** WALLLAYOUTLIST Command Output – Model 550 Series (Continued)

Use the [WALLLAYOUTLOAD](#) command to load a layout from the list that matches your physical wall layout.

<b>Example</b>	To load Wall Layout 3, use the command: <pre style="text-align: center; margin: 0;">walllayoutload 3</pre>
----------------	---



## CUSTOM WALL LAYOUTS

The [WALLLAYOUTLIST](#) command presents a wide variety of wall layouts that address the majority of customer requirements. However, if none of the available wall layouts suits your needs, the *MediaWall V* provides the ability to import and load custom wall layouts. To do this, use the [WALLLAYOUTIMPORT](#) command.

### 4.2.2 Choosing an Output Timing Reference

#### Important

If your *MediaWall V* system contains one or more DOM cards, the output timing reference is always the *MediaWall V* internal timing generator. The [OutPutREference](#) command query always returns **INT**.

The *MediaWall V 4K/UHD Display Processor* supports a wide variety of display devices. The **output timing reference** is the source of the information the *MediaWall V* needs to tailor its output signal to match the capabilities of the display. It can use Extended Display Identification Data (EDID) that it receives from a display as its output timing reference. Or, it can use output timing values from its internal timing list.

To select an output timing reference, use the [OutPutREference](#) command.

#### Examples

To turn the EDID output mode on, use the command:

```
opref edid
```

If your displays do not support EDID, set the output timing reference to INTERNAL, as follows:

```
opref int
```

#### Note

If you are using external EDID emulators or UTP extenders between the *MediaWall V* outputs and the displays, make sure they are all configured to use the same EDID. (*MediaWall V* output settings are global; that is, applied to all outputs.)

When you set [OutPutREference](#) to EDID, the [OutPutTiMing](#) command query returns **Auto\_EDID**.

If you set [OutPutREference](#) to INT, use the [OutPutTiMingLOAD](#) command to use output timing values from the *MediaWall V* [Factory Timing List](#).



<b>Example</b>	<p>To use the output timing values from timing list entry 72 (3840 × 2160p @30Hz), use the command:</p> <pre style="text-align: center; color: #c00000;">optmload 72</pre>
----------------	--

### 4.2.3 Creating a Window and Choosing a Window Source

#### CREATING A WINDOW

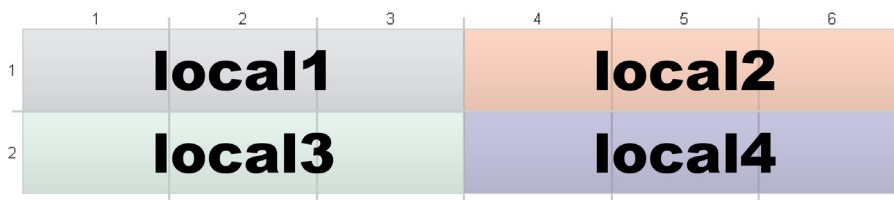
To create a window on a wall, use the [WINDOWALLOCate](#) command. A window can be either `global` (that is, it can occupy any area of the wall) or `local [X]` (confined to locale [X] of the wall's displays). The window resolution can be either `hd` or `uhd`.

#### What is a "Locale"?

A **locale**, in most cases, is a row on a wall. On a so-called "long" wall – seven (7) or more columns wide at 2K/HD output timing, four (4) or more columns wide at 4K/UHD @30 Hz output timing, or two (2) or more columns wide at 4K/UHD @60 Hz output timing – a locale refers to an area of a wall fed by a single output card. For example, in a 2 × 8 wall, outputs 1 through 6 and outputs 7 and 8 represent two separate locales. See [Figure 4-3](#), [Figure 4-4](#), and [Figure 4-5](#).



**Figure 4-3** Window Locales in a 2 × 8, 2K/HD Wall



**Figure 4-4** Window Locales in a 2 × 6, 4K/UHD @30 Hz Wall



**Figure 4-5** Window Locales in a 1 × 4, 4K/UHD @60 Hz Wall

**Example**

To create a window of type `hd` on Wall 1, numbered Window 1, that can be positioned anywhere on the wall, use the command:

```
winalloc 1 1 global hd
```

**CHOOSING A WINDOW SOURCE**

To route a source to a window on a wall, use the [WINdowSouRCe](#) command.

**Example**

To set the source of Wall 1, Window 3 to Input 4, use the command:

```
winsrc 1 3 4
```

[Section 4.3, Windows](#), describes these and other window configuration options in detail.



#### 4.2.4 Compensating for Mullions or Configuring Overlapping Outputs

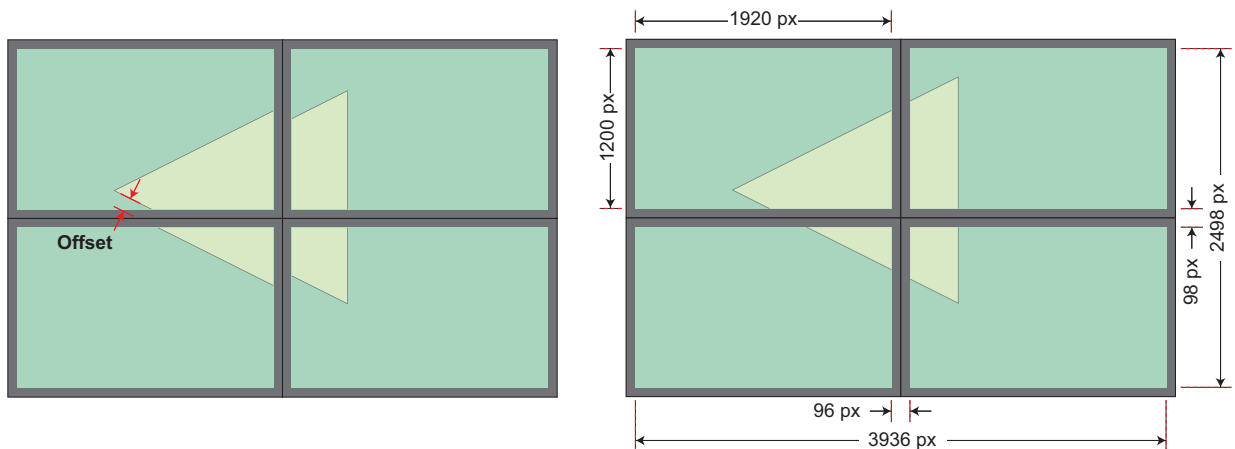
When an image spans across multiple displays on a wall, it can sometimes appear misaligned and distorted due to the space between the displays. Likewise, when multiple projectors are used to create a larger, unified image, visible seams may appear along the projected image edges. To address these issues, the *MediaWall V* provides mullion compensation and output overlap controls.

Before using these controls, create at least one window on the wall and position it such that it straddles at least two displays (four if the wall has two or more rows). Refer to the previous section, [Creating a Window and Choosing a Window Source](#).

##### MULLION COMPENSATION

Walls consisting of cubes or arrays of flat-panel displays can create image distortion due to the size of the bezel surrounding each display, known as **mullions**. This prevents the active picture areas of individual outputs from being aligned exactly with the picture area on the adjacent display.

With mullion compensation, you can adjust the image to compensate for the physical space created by the bezels of your displays. The result is an image that appears seamlessly across your displays. See [Figure 4-6](#).



**Figure 4-6** Mullion Compensation

To compensate for mullions, use the [WALLMULLIONS](#) command.

##### Example

To produce the result shown in the image on the right side of [Figure 4-6](#) on Wall 1, specify a mullion width of 96 pixels and a mullion height of 98 lines:

```
wallmullion 1 96 98
```



## OUTPUT OVERLAP

Using mullion compensation, you can correct a distortion in the displayed image due to the offset caused by the bezel surrounding individual display devices. An opposite issue can occur when implementing walls using front or rear projection. This requires a technique known as **output overlap** to support the edge blending capability of projectors.

With output overlap, you can adjust the number of overlapping pixels between projectors to create a seamless transition between the images from adjacent projectors.



**Figure 4-7** Output Overlap

To produce output images with overlapping edges, use the [WALLOVERLAP](#) command. The command syntax is similar to that of the [WALLMULLIONS](#) command.

### Example

To set the horizontal overlap to 50 pixels on Wall 1, type:

```
wallov 1 50 0
```



## 4.3 Windows

The following sections describe the manipulation of windows displayed on the wall. This includes the selection of input source, window size and position, contrast and brightness, zoom and pan. If you are not familiar with the manipulation of windows using source and destination coordinates, refer to [Chapter 2](#).

### 4.3.1 Coordinate Space

The position of a window displayed on the wall is defined by the coordinates of the window within the coordinate space of the wall (not the coordinate space of individual outputs). For example, if the resolution of the individual display elements of a 2 × 2 wall are 1920 × 1200, the total coordinate space of the wall is 3840 × 2400.

### 4.3.2 Window Visibility

To hide or show any window (or all windows), use the [WINDOWENABLE](#) command.

Note that hiding a window does not prevent other commands from being applied to the window. For example, you can select a window input, position the window, size the window or change its priority even when it is not visible.

#### Examples

To turn all windows off on Wall 1, type:

```
winen 1 all off
```

To show Wall 1, Window 4, use the command:

```
winen 1 4 on
```

#### Note

Hiding a window does not increase available system resources. To increase available system resources, use the [WINDOWFREE](#) command.



### 4.3.3 Selecting a Window Input (Source)

To specify an input number for a window, use the [WINDOWSouRCe](#) command.

#### Examples

To set the source for Wall 1, Window 3 to Input 3, use the command:

```
winsrc 1 3 3
```

To display the source for all windows on Wall 1, use the command:

```
winsrc 1 all
```

### 4.3.4 Window Size and Position

To change the size and position of a window, use the [WINDOWDESTINATIONRECTangle](#), [WINDOWSIZE](#), and [WINDOWPOSition](#) commands.

#### WINDOW DESTINATION RECTANGLE

The [WINDOWDESTINATIONRECTangle](#) command provides a single command that can be used to size and position each window anywhere in the output space. It allows you to define the position of the upper left corner of the window as well as the height and width of the window. For a complete description of this command, refer to [Section 2.1.2, Window Destination Rectangle](#).

#### Examples

On a wall of 1920 × 1080 displays, to set Wall 1, Window 4 to full screen on Output 1, use the command:

```
windestrect 1 4 0 0 1919 1079
```

To set the size of Wall 1, Window 6 to 100 pixels × 100 lines and position its upper-left corner at column 300, line 400 of the wall, use the command:

```
windestrect 1 6 300 400 100 100
```

The [WINDOWDESTINATIONRECTangle](#) command is useful to position and size the window in absolute terms. The ability to set the height and width independently also provides the ability to set the aspect ratio of the window. If you wish to keep the aspect ratio constant, be sure to calculate the height to correspond with the width you are setting (or vice versa).





## SIZE AND POSITION

Use the [WINDOWSIZE](#) and [WINDOWPOSITION](#) commands to resize and move a window, relative to its current size or position.

The [WINDOWSIZE](#) command changes the height of the window; the width is changed by an amount calculated automatically to maintain the aspect ratio of the window. For example, when a window with an aspect ratio of 4:3 changes by 6 lines, the width changes by 8 pixels.

To set the increment size for the [WINDOWPOSITION](#) and [WINDOWSIZE](#) commands, use the [WINDOWSETSTEP](#) command.

[WINDOWSIZE](#) accepts these arguments:

- ◆ Wall number
- ◆ Window number
- ◆ **s** (make window smaller) or **l** (make window larger)
- ◆ **repetition** (1...100) = number of increments by which to change window height

### Example

To reduce the height of Wall 1, Window 3 by 3 increments, use the command:

```
winsize 1 3 s 3
```

If you set the vertical increment to 3 lines using [WINDOWSETSTEP](#), this reduces the height by 9 lines. If the aspect ratio of Wall 1, Window 3 is 16:9, `winsize 1 3 s 3` also reduces the width by 16 pixels.

The [WINDOWPOSITION](#) command changes the position of the window. It accepts these arguments:

- ◆ Wall number
- ◆ Window number
- ◆ **i** (move up), **m** (move down), **j** (move left), or **l** (move right)
- ◆ **repetition** (1...100) = number of increments to move

### Example

To move Wall 1, Window 3 to the left by 10 increments, use the command:

```
winpos 1 3 j 10
```

If you set the horizontal increment to 3 pixels using [WINDOWSETSTEP](#), this moves the window 30 pixels to the left.

See also [WINDOWSETSTEP](#) and [WINDOWFULLSCREEN](#).



### 4.3.5 Overlapping Windows

You can position a window anywhere in the wall. This includes positioning a window in front of another window. In this case, one window obscures all or part of the other window (or windows). Overlapping windows are layered according to a user-defined priority setting. The layer that appears in front of all other windows has the highest priority, level one (1). The lowest priority window is behind all other windows.

Use the [WINdowPRIorityList](#) command to show the priority of one or all windows on a wall.

#### Examples

To show the priority level of Wall 1, Window 4, use the command:

```
winpril 1 4
```

To show the priority level of all windows on Wall 1, use the command:

```
winpril 1
```

Use the [WINdowPRIoritySEQ](#) or [WINdowPRIorityTOP](#) command to view or change the priority level of one or more windows. When setting the priority of one or more windows, the absolute priority of other windows may change.

#### Examples

To set the priority level of Wall 1, Window 4 to priority level 5, use the command:

```
winpriseq 1 5 4
```

To set the priority level of Wall 1, Windows 4, 5, and 6 to priority levels 5, 6, and 7, use the command:

```
winpriseq 1 5 4 5 6
```

Set the priority level of a series of windows on Wall 1 using a list of windows in priority order, starting from 1. To establish the priority level of windows as follows...

Priority Level	1	2	3	4	5	6	7	8
Window	3	4	1	2	6	5	7	8

...use one of these commands:

```
winpritop 1 3 4 1 2 6 5 7 8
```

```
winpriseq 1 1 3 4 1 2 6 5 7 8
```

Note that you do not need to specify the starting priority level with the `winpritop` command.



### 4.3.6 Zoom and Pan within a Window

#### Notes

1. Zoom is currently supported for 2K/HD and 4K/UHD @30 Hz source windows only.
2. Horizontal (left/right) panning is currently supported for 2K/HD source windows only.

To zoom the image in a window, use the [WINDOWZOOM](#) command. To cancel a current zoom setting, use the [WINDOWUNZOOM](#) command. Use the [WINDOWPAN](#) command to select the image within the zoomed window.

To set the increment size for the [WINDOWZOOM](#) and [WINDOWPAN](#) commands, use the [WINDOWSETSTEP](#) command.

[WINDOWZOOM](#) accepts these arguments:

- Wall number
- Window number
- i (zoom in) or o (zoom out)
- **repetition** (1...100) = number of increments by which to zoom in or out

#### Examples

To zoom out of the image within Wall 1, Window 3 by 25 increments, use the command:

```
winzm 1 3 o 25
```

If you set the vertical increment to 3 lines using [WINDOWSETSTEP](#), this zooms out by 75 lines. If the aspect ratio of Wall 1, Window 3 is 16:9, `winzm 1 3 o 25` also zooms out by 133 pixels.

To zoom in (magnify) the image within Wall 1, Window 3 by 50 increments, use the command:

```
winzm 1 3 i 50
```

If you set the vertical increment to 3 lines using [WINDOWSETSTEP](#), this zooms in by 150 lines. If the aspect ratio of Wall 1, Window 3 is 16:9, `winzm 1 3 i 50` also zooms in by 266 pixels.

To reset a zoom for Wall 1, Window 3, use the command:

```
winunzoom 1 3
```



[WINDOWPAN](#) also accepts several arguments:

- Wall number
- Window number
- *i* (pan up), *m* (pan down), *j* (pan left), or *l* (pan right)
- **repetition** (1...100) = number of increments to pan

<b>Example</b>	To pan left in Wall 1, Window 2 by 10 increments, use the command:
	<code>winpan 1 2 j 10</code>
	If you set the horizontal increment to 5 pixels using <a href="#">WINDOWSETSTEP</a> , this pans 50 pixels to the left.

The [WINDOWSOURCERECTANGLE](#) and [WINDOWSOURCERECTANGLERELATIVE](#) commands provide a more powerful tool to zoom and pan within a window. The [WINDOWSOURCERECTANGLE](#) command provides the ability to select a portion of the image in the source coordinate space. For example, to zoom by a factor of two you could choose to select only 50% of the source image. The *MediaWall V 4K/UHD Display Processor* automatically scales the source image to fit in the appropriate window.

For more information about source rectangles, refer to [Image Rectangles](#) on page 2.

### 4.3.7 Adjusting Image Quality

The image quality for each input can be adjusted independently. Image parameters include:

- [BRiGhtness](#)
- [CONTRast](#)
- [HUE](#)
- [SATuration](#)
- [SHARPNess](#)

[Table 4-1](#) lists the value ranges and default values for these commands.

**Table 4-1 Image Quality Value Ranges and Default Values**

Command	Minimum	Maximum	Default
Brightness	-127	128	0
Contrast	0	255	128
Hue	-180	180	0
Saturation	0	255	128
Sharpness	-10	5	0



## Examples

To set the brightness of Input 8 to 10 steps below nominal (default = 0), use the command:

```
bri 8 -10
```

To increase the contrast of Input 3 to 10 steps above nominal (default = 128), use the command:

```
cont 3 138
```

### 4.3.8 Window Borders

You can apply a colored border independently to each window using the [WINDOWBorderWIDTH](#) command. The border width can be set to a value between 0 and 100.

## Example

To set the width of the border displayed around Wall 1, Window 6 to 30, use the command:

```
winbwidth 1 6 30
```

This sets the width of the vertical border to 30 pixels and height of the horizontal border to 30 lines. The image will be automatically scaled down so that the size of the window plus border is maintained at the size defined by the [WINDOWDESTINATIONRECTangle](#) command.

To set the window border color, use the [WINDOWBorderCOLOR](#) command. You can specify a standard, named color (black, white, red, green, blue, yellow, magenta, or cyan) or define a custom color in terms of the red, green, and blue components (three values ranging from 0 to 255).

## Examples

To set the color of the border displayed around Wall 1, Window 6 to red, use the command:

```
winbcolor 1 6 red
```

To set the color of the border displayed around Wall 1, Window 2 to red = 50, green = 100, blue = 127, use the command:

```
winbcolor 1 2 50 100 127
```



### 4.3.9 Window Labels

You can apply a descriptive label to each window on the wall, using the [WindowLaBeLNAME](#) command. A name can be up to 64 characters in length and includes numeric, alphabetic (upper and lower case), space and punctuation characters.

#### Example

To create a label “DVD\_Player\_1” for Wall 1, Window 3, use the command:

```
wlblname 1 3 DVD_Player_1
```

#### DISPLAYING A WINDOW LABEL

To enable or disable a window label, use the [WindowLaBeLEnable](#) command. To enable or disable all window labels simultaneously, use the optional ALL argument.

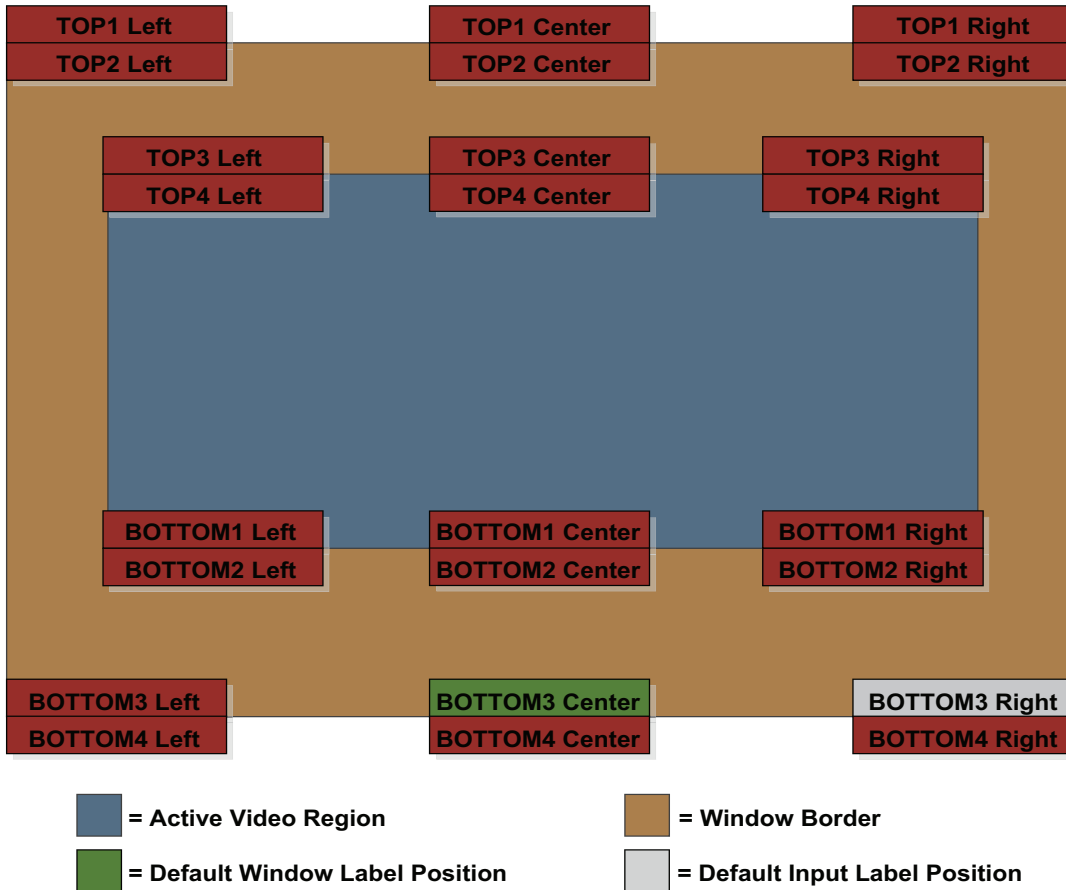
#### Example

To display all window labels on Wall 1, use the command:

```
wblen 1 all window on
```

#### POSITIONING A WINDOW LABEL

You can specify a window label’s position with respect to either the window’s border or the active video region. See [Figure 4-8](#).



**Figure 4-8** Horizontal and Vertical Window Label Position Options

To align a label with the top or bottom of the window (or its border), use the [WindowLaBeLVerticalPosition](#) command. To align a label with the left edge, center, or right edge of a window (or its border), use the [WindowLaBeLHorizontalPosition](#) command.

You must specify the wall and window number (or ALL) for which you are positioning the label. Specify `input` to apply this setting to all windows populated by that input, or `window` to affect a single instance of that input on the wall.

### Examples

To set the vertical label position for Wall 1, Window 2 to BOTTOM4 (below the window border), use the following command:

```
winlblvpos 1 2 window bottom4
```

To set the horizontal label position for Wall 1, Window 2 to LEFT, use the following command:

```
winlblhpos 1 2 window left
```



## WINDOW LABEL SIZE

To set the height (in pixels) of a window label, use the [WindowLaBeLSIZE](#) command. Four label sizes are available: SIZE1 (32 px), SIZE2 (64 px), SIZE3 (128 px), and SIZE4 (256 px).

The text height is 80 percent of the label height; for example, in a SIZE1 window label, the text is approximately 26 pixels high.

You must specify the wall and window number (or ALL) for which you are sizing the label. Specify `input` to apply this setting to all windows populated by that input, or `window` to affect a single instance of that input on the wall.

### Example

To set the height of the Wall 1, Window 3 label to SIZE3 (128 px), use the command:

```
wlblsize 1 3 window size3
```

## WINDOW LABEL TEXT AND BACKGROUND COLOR

To set the window label text color, use the [WindowLaBeLCOLOR](#) command. The label is displayed on top of a colored background that is automatically sized to match the length of the label. To set the window label background color, use the [WindowLaBeLBackGroundCOLOR](#) command.

You can specify a standard, named color (black, white, red, green, blue, yellow, magenta, or cyan) or define a custom color in terms of the red, green, and blue components (three values ranging from 0 to 255). For label backgrounds, use the `transparent` argument to hide the background.

You must specify the wall and window number (or ALL) for the label whose text or background color you are changing. Specify `input` to apply these settings to all windows populated by that input, or `window` to affect a single instance of that input on the wall.

### Examples

To set the color of the label text for Wall 1, Window 3 to cyan, use the command:

```
wlblcolor 1 3 window cyan
```

To set the color of the label background for Wall 1, Window 3 to red = 100, green = 200, and blue = 50, use the command:

```
wlblbgcolor 1 3 window 100 200 50
```





### 4.3.10 Presets

You can save parameter settings – such as window source, position, size, labels, image quality and many others – to a preset register for recall later. There are a total of 60 preset registers available for this purpose.

For more information about presets, refer to [Presets](#) in [Chapter 6](#).

#### CREATING A PRESET

To create a preset of the current display state of a wall:

1. Arrange your windows and route your sources to outputs as needed.
2. Use the command [PresetSAVE](#) to save the settings to the specified preset register.

#### Example

To save the current settings to register 19, use the command:

```
psave 19
```

#### DELETING A PRESET

To delete the contents of a preset, use the command [PresetDElete](#).

#### Example

To delete the contents of preset 12, use the command:

```
pdel 12
```

This deletes the contents of preset 12, including the preset name.

#### NAMING PRESETS

Each preset is numbered (1...60). You can also assign a descriptive name to a preset to make the identification of the contents easier. For example, you may have a preset named “All\_Borders\_On” that turns on borders and labels for all windows.

Use the [PresetNAME](#) command to name a preset. (You do not need to execute a [PresetSAVE](#) afterwards.)

#### Example

To name preset 21 “Normal\_Set\_Up,” use the command:

```
pname 21 Normal_Set_Up
```

**Note**

Do not attempt to modify and over-write a preset. Instead, follow these steps:

1. Load the preset using the [PresetLOAD](#) command.
2. Arrange your windows and route your sources to outputs as needed.
3. Delete the preset using the [PresetDELeTe](#) command.
4. Save the preset again in the previous location using the [PresetSAVE](#) command.
5. (Optional) Assign the previous name to the preset using the [PresetNAME](#) command.

**LISTING PRESETS**

Use the [PresetLIST](#) command to report one or all presets.

**4.3.11 Color Space**

A **color space** is a method of representing and encoding the color content of an image. There are many different color spaces in use today for print, video, photographic and scientific applications; an in-depth explanation of the subject is beyond the scope of this manual.

For video processing, the two most common color spaces are **RGB** and **color difference**.

- **RGB** signals contain three color values, representing the amount of red, green and blue content in the image.
- **Color difference** signals encode brightness information separately from color information. They also contain three values: one representing the overall brightness (luminance or “Y”) of the image, and the other two representing the **chrominance** (color content) of the image.

RGB signals are typically used in computer graphics as found in computer systems. Color difference signals are more often applied to video devices such as set-top boxes and TV displays.

RGB and color difference signals are related; the *MediaWall V 4K/UHD Display Processor* performs the necessary conversion between these different types as required. Analog color difference signals are known as “YPbPr” while the digital form of color difference signals uses the term “YCbCr” (these are sometimes used interchangeably).

The *MediaWall V* inputs accept digital signals that use the RGB or YCbCr color space, or contain no color information (monochrome). However, if the signal type is not the one for which the *MediaWall V* is currently configured, the color of the image will be incorrectly interpreted and it will be displayed with false colors. To correct this, use the [INputCoLoRSPaCe](#) command.

If you do not know the format of the input signal, refer to the next section for examples of images with the incorrect setting of the [INputCoLoRSPaCe](#) command.



**Note** 4K/UHD input signals must use the RGB color space.

**SETTING THE COLOR SPACE**

Table 4-2 lists the various color space commands and describes their effect on RGB and YCbCr input signals. For purposes of illustration, a segmented color bar test pattern is used as the input image:





Note that some input type/color space combinations are invalid and/or produce less than desirable results.

**Table 4-2 Color Space Selections and Their Effects**

Input Signal Color Space	Color Space Command	Image Appearance/Result
RGB	<code>inclrspc &lt;input #&gt; rgb</code>	Correct colors. 
	<code>inclrspc &lt;input #&gt; bt601</code>	Incorrect colors. To see correct colors, use the command <code>inclrspc &lt;input #&gt; rgb</code> . 
	<code>inclrspc &lt;input #&gt; bt709</code>	Incorrect colors. To see correct colors, use the command <code>inclrspc &lt;input #&gt; rgb</code> . 



**Table 4-2 Color Space Selections and Their Effects (Continued)**

Input Signal Color Space	Color Space Command	Image Appearance/Result
YCbCr	<code>inclrspc &lt;input #&gt; &lt;bt601   bt709&gt;</code>	Correct colors. 
	<code>inclrspc &lt;input #&gt; rgb</code>	Incorrect colors. To see correct colors, use the command <code>inclrspc &lt;input #&gt; &lt;bt601   bt709&gt;</code> . 

**DISPLAYING A COLOR IMAGE IN MONOCHROME**

To display a color signal in monochrome (grayscale), use the [SATuration](#) command as follows:

1. Use the command `winsrc <wall #> <window #> <input #>` to route the input signal to a window.
2. Use the command `sat <input #> 0`.

To switch from monochrome back to color output, use the command `sat <input #> [n]`, where [n] is whatever it was prior to being set to zero.



## 4.4 Clock

Up to six foreground clocks can be displayed anywhere on each wall. Clocks always have the highest priority and therefore appear in front of any window.

### 4.4.1 Setting Clock Attributes

The *MediaWall V* provides commands for setting these clock attributes:

- [Color](#)
- [Size](#)
- [Position](#)
- [Time Format](#)
- [Date Format](#); and
- [Time Zone](#).

#### COLOR

Use the [TIMECOLOR](#) command to set the clock text color. You can set the color by setting the red, green, and blue values (0...255) or selecting one of eight pre-defined colors.

#### Examples

To set the Wall 1/Clock 1 text color to red = 255, green = 128, and blue = 16, use the command:

```
timecolor 1 1 255 128 16
```

To set the text color of all clocks on Wall 1 to blue, use the command:

```
timecolor 1 all blue
```



## SIZE

To set the height (in pixels) of a clock, use the [CLOCKSIZE](#) command. Three clock sizes are available: SIZE1 (32 px), SIZE2 (64 px), and SIZE3 (128 px).

The text height is 80 percent of the clock height; for example, in a SIZE1 clock, the text is approximately 26 pixels high.

### Example

To set the height of Clock 3 on Wall 1 to SIZE3 (128 px), use the command:

```
clocksize 1 3 size3
```

## POSITION

To set the position of a clock on a wall, use the [CLOCKPOSITION](#) command.

### Example

To position Wall 1/Clock 1 at coordinates X = 1000 and Y = 200, use the command:

```
clockpos 1 1 1000 200
```

## TIME FORMAT

Use the [TIMEFORMaT](#) command to select the 12-hour or 24-hour time format, and include or exclude the seconds.

### Example

To have all clocks on Wall 1 display the time in 12-hour format including the seconds, use the command:

```
timefmt 1 all 12 secon
```

## DATE FORMAT

Use the [DATEFORMaT](#) command to select the preferred date display format: US (mm-dd-yyyy) or ISO (yyyy-mm-dd). Also specify whether to display all four digits of the year, or just the last two digits.

### Example

To have Wall 1, Clock 1 display the date in ISO 8601 date format with a four-digit year (yyyy-mm-dd), use the command:

```
datefmt 1 1 iso 4
```



## TIME ZONE

Use the [TimeZone](#) command to specify the local time zone, relative to Greenwich Mean Time/Universal Coordinated Time (GMT/UTC). (The new setting takes effect when you reboot the *MediaWall V*.)

### Example

To set the time zone for Clock 1 on Wall 1 to United States Pacific Standard Time (UTC-8:00), use the command:

```
tz 1 1 -8 0
```

## 4.4.2 Enabling the Clock

The [CLOCKENable](#) command turns a clock on or off.

### Example

To turn off all clocks on Wall 1, use the command:

```
clocken 1 all off
```

## 4.4.3 Enabling the Date

The [DATEENable](#) command controls the display of the date, in addition to the time, for the specified clock.

### Example

To have Clock 1 on Wall 1 display both the date and time, use the command:

```
dateen 1 1 on
```

## 4.4.4 Clock Synchronization

The system clock can be synchronized to a network time server (NTS). Two commands are used to define synchronization: [NTSIP](#) and [SYStemTIME](#).

You can specify up to three NTS IP addresses using the command [NTSIP](#).

### Example

To specify the NTS at IP address 64.90.182.55 for synchronization:

```
ntsip 64.90.182.55
```

To configure NTS synchronization or set the system time manually, use the [SYStemTIME](#) command.



## Examples

To perform a one-time, immediate system clock sync with an NTS, use the command:

```
systemtime ntp
```

To resync the system clock with a network time server once every four hours, type:

```
systemtime nts 240
```

The range from 30 to 1,440 minutes (24 hours) inclusive.

To set the system time to 2:00 pm, February 6, 2016 (GMT/UTC), use the command:

```
systemtime manual 2016 02 06 14 00 00
```

## 4.5 EDID

The *MediaWall V* maintains a list of EDID values. Entries 1 through 10 are reserved for factory EDID; entries 11 through 60 are available for user-imported or captured EDID.

To force a hot-plug event on any input, use the [FORCEHotPlug](#) command. This can be useful to wake up a computer under KVM control or for diagnostic purposes.

### Example

To force a hot plug event on Input 1, use the command:

```
forcehnp 1
```

To capture EDID from any output to a user EDID list entry (11...60), use the [EdiDCAPture](#) command. To see one or more list entries, use the [EdiDLIST](#) command. To remove a single user entry from the EDID list, use the [EdiDDElete](#) command. To name a user EDID on the list, use the [EdiDNAME](#) command.





### Examples

To save the EDID on Output 1 to list entry 21, type:

```
edcap 21 1
```

To report EDID list entries 1 through 10, use the command:

```
edlist 1 10
```

To delete user EDID list entry 30, type:

```
eddel 30
```

To name EDID list entry 15 XENA.dat, type:

```
edname 15 XENA.dat
```

To display EDID information for an input port or output port, use the [EdiDINFO](#) command.

### Example

To report the EDID on Input 3, type:

```
edinfo in 3
```

To load EDID from the list to one or all inputs, use the [EdiDLOAD](#) command.

### Example

To load EDID list entry 2 (3840 × 2160 @30 Hz) to Input 5, use the command:

```
edload 5 2
```

To restore the EDID on one or all inputs to the factory default, use the [EdiDRFD](#) command.

### Example

To restore the EDID on Input 2 to the factory default, use the command:

```
edrfd 2
```

You can save an EDID list entry to a file for transfer to a PC with [EdiDEXPORT](#), or import EDID from a file with [EdiDIMPORT](#). Refer to [Using FTP on page 145](#) for instructions on transferring files between the *MediaWall V 4K/UHD Display Processor* and a PC.

### Examples

To export EDID list entry 16 to a file called "EDID16.dat," use the command:

```
edexport 16 EDID16.dat
```

To import the EDID in the file "MonitorABC.dat" to list entry 12, type:

```
edimport 12 MonitorABC.dat
```



## 4.6 Custom Output Timing

Timing list commands are used to manage custom output timings. [TiMingSAVE](#) is used to create a set of timing values and add it to the Timing List. [TiMingLIST](#) lists the parameters of one or more entries in the Timing List. [TiMingDElete](#) is used to delete a single user-defined list entry, or all user-defined list entries.

## 4.7 Network and Serial Communication Settings

Refer to [System Commands](#) in [Chapter 5](#) for further information.

## 4.8 Control System Programming Guidelines

If you are using a third-party control system with the *MediaWall V*, follow these guidelines when programming your control system for best results.

### 4.8.1 Wait for a Response

Avoid sending commands in rapid succession without confirming that the *MediaWall V* has received and acknowledged each one. After issuing a command, wait for the `user>` or `admin>` prompt before issuing a new command.

### 4.8.2 Use the SYStemTIME Command to Poll the *MediaWall V*

It is a common practice in control system programming to check a device for readiness periodically. One way to do this is to send a command to a device at regular intervals, then listen for a response. This is called **polling**.

**RGB Spectrum recommends that you always use the [SYStemTIME](#) command to poll the *MediaWall V*.** Using other commands (for example, [ID](#), [SYStemINFO](#), or [VERsion](#)) for this purpose may not work as expected or cause the system to become unresponsive.

# CHAPTER 5

# CONTROL COMMANDS

This chapter discusses the control commands that provide access to all *MediaWall V 4K/UHD Display Processor* functions. It covers the following topics:

- [Command Format](#)
- [Commands](#)
  - [Clock Commands](#)
  - [EDID Commands](#)
  - [HDCP Commands](#)
  - [Input Commands](#)
  - [Label Commands](#)
  - [Output Commands](#)
  - [Preset Commands](#)
  - [System Commands](#)
  - [Thumbnail Commands](#)
  - [Wall Commands](#)
  - [Window Commands](#)
- [Timing Parameters](#)
- [Factory Timing List](#)



## 5.1 Command Format

The *MediaWall V* uses a simple text-based control protocol to take requests from control devices and to provide responses to such devices. This section describes how to send control messages over a TCP/IP or serial link between the *MediaWall V* and an automation/control system or a PC running terminal emulation software.

### 5.1.1 Command Line Usage

All commands take the following form...

```
COMMANDNAME <value1> <value2> ... <valueN>
```

... and are completed by pressing **Enter**.

Required parameter values are shown in angle brackets < >. In the above example, <value1> and <value2> are required parameters specific to that command.

#### Example

The default baud rate is 115,200 bps. To change it to 9600 bps, enter the command:

```
BAUDRATE 9600
```

#### Note

After issuing a command from a serial device such as a controller, wait for a prompt before issuing a new command.

The majority of commands have both long and short forms:

- The long-form version is an easily understood word (or the concatenation of two or more words).
- The short-form version is an abbreviation of the command.

#### Note

Commands are not case-sensitive. In the Command List, uppercase characters in the long-form version indicate the letters required for the short-form version.

In the example above, the command `BAUDrate` could be entered in the following ways:

```
BAUDRATE
```

```
baudrate
```

```
BAUD
```

```
baud
```



**Important**

To execute commands, each command line must end with a carriage return (pressing Enter).

### 5.1.2 Command Help

There are three ways to use the *MediaWall V 4K/UHD Display Processor's* help feature:

- Type `Help` or `h` to list all *MediaWall V 4K/UHD Display Processor* commands.
- Type `Help` or `h` followed by a command to get command-specific help.
- Type `Help` or `h` followed by a string to see a list of all commands containing that string, along with their parameters.

**Examples**

Type `H BRI` to get help on the [BRightness](#) command.

Type `H WINSRCRECT` to get help on the [WINDowSouRCeRECTangle](#) command.

Type `H WALL` to see a list of all commands containing the string `WALL`, along with their parameters.

### 5.1.3 Predefined Parameter Values

Some commands have predefined values, and only these may be used as parameter choices. Predefined parameter choices are indicated as:

`<value1 | value2 | value3>`

**Example**

The choices for `BAUDrate` are:

`<9600 | 19200 | 38400 | 57600 | 115200>`

### 5.1.4 Query the Current Setting

When you enter a command without any parameters, the *MediaWall V 4K/UHD Display Processor* reports back the current settings of the selected parameter.

**Example**

What is the current baud rate setting?

`baud`

returns:

`115200`



### 5.1.5 Parameter Ranges

Parameter values may be a range of values or a defined set of choices (as described above in the [Predefined Parameter Values](#) section).

Ranges are indicated as:

```
<value1...value2>
```

#### Example

The value of `BRiGhtness` is a range of:

```
<-127...128>
```

### 5.1.6 Addressable Commands

Commands such as `BAUDrate` do not need an explicit address, as the *MediaWall V 4K/UHD Display Processor* has only one serial port. However, other commands can be applied to several destinations. For example, the `BRiGhtness` command can apply to all *MediaWall V 4K/UHD Display Processor* inputs (`BRI ALL 100`) or to an individual input (`BRI 1 100`).

An individual destination is indicated by a parameter such as `<input_number>`.

#### Example

Set the brightness of Input 1 to 50:

```
bri 1 50
```

Many commands allow the use of the optional modifier `ALL` which enables you to set all applicable destinations with one command or to display the current setting. The command parameter will then be indicated in the following form:

```
<window # | ALL>
```

#### Example

Enable all windows on Wall 1:

```
winen 1 all on
```



### 5.1.7 Optional Parameters

Some commands have optional parameter values. These discretionary values are indicated by square brackets []:

```
COMMAND <value> [value2]
```

For example, `WINDOWFullscreen` is a command with optional parameters. The first two values, `<wall #>` and `<window #>`, are required parameters; the third is optional:

```
WINFS <wall #> <window #> [output #]
```

The `[output #]` parameter specifies an output to fill with the contents of `<window #>`. If `[output #]` is omitted, the contents of `<window #>` fills the wall.

### 5.1.8 Named Parameters

The following commands let you identify parameters by a descriptive name instead of a number or arbitrary, default value:

- [EdiDNAME](#)
- [HOSTNAME](#)
- [INputLabeINAME](#)
- [TiMingSAVE](#)
- [WALLLaBeLNAME](#)
- [PresetNAME](#)

#### Example

Set the host name to "MediaWallFive":

```
hostname MediaWallFive
```



## 5.2 Commands

[Table 5-1](#) provides a hyperlinked index of all *MediaWall V 4K/UHD Display Processor* commands in alphabetical order. Click a hyperlink to go directly to a detailed description of the command.

### Note

Some commands described in this chapter are available only to operators logged in as an administrator. These are identified by a yellow background in [Table 5-1](#) and subsequent tables:

<a href="#">ADMINPASSWD§</a>	System§	Changes the administrator password. §
------------------------------	---------	---------------------------------------

**Table 5-1 Command Summaries**

Command	Type	Description
<a href="#">ADMINENTER</a>	System	Puts the current command-line session in administrator mode.
<a href="#">ADMINEXIT</a>	System	Puts the current command-line session in user mode. No password is needed.
<a href="#">ADMINPASSWD</a>	System	Changes the administrator password.
<a href="#">AUXOUTput</a>	Output	Routes an input to one or all auxiliary outputs.
<a href="#">AUXOutPutENable</a>	Output	Enables or disables one or all auxiliary outputs.
<a href="#">AUXOutPutMODE</a>	Output	Sets the output mode for one or all auxiliary outputs.
<a href="#">BackGroundCOLOR</a>	Output	Sets the wall background color.
<a href="#">BAUDrate</a>	System	Sets the serial port baud rate.
<a href="#">BRightness</a>	Input	Sets the brightness value of the selected input.
<a href="#">CLOCKENable</a>	Clock	Enables or disables the display of a foreground clock.
<a href="#">CLOCKPOSITION</a>	Clock	Sets the coordinates of the clock when displayed.
<a href="#">CLOCKSIZE</a>	Clock	Sets or reports the size of an on-screen clock.
<a href="#">CONTrast</a>	Input	Sets the contrast value of the selected input.
<a href="#">DATEENable</a>	Clock	Enables or disables the display of the date for the specified clock.
<a href="#">DATEForMaT</a>	Clock	Selects either the United States (mm-dd-yyyy) or ISO 8601 (yyyy-mm-dd) date format for display, with either a two-digit or four-digit year.
<a href="#">ECHO</a>	System	Turns the serial port echo on/off.
<a href="#">EdiDCAPture</a>	EDID	Captures EDID from the device on a Wall, Auxiliary, or Switched output to the EDID list.
<a href="#">EdiDDElete</a>	EDID	Deletes a user EDID list entry.
<a href="#">EdiDEXPORT</a>	EDID	Exports user EDID from the list to a file.
<a href="#">EdiDIMPORT</a>	EDID	Imports EDID from an uploaded file to the EDID list.





**Table 5-1 Command Summaries (Continued)**

Command	Type	Description
<a href="#">EdiDINFO</a>	EDID	Displays EDID information for an input or output port.
<a href="#">EdiDLIST</a>	EDID	Displays one or more EDID list entries.
<a href="#">EdiDLOAD</a>	EDID	Loads EDID from the EDID list to one or all input PROMs.
<a href="#">EdiDNAME</a>	EDID	Names a user EDID list entry (numbers 11 through 60).
<a href="#">EdiDRFD</a>	EDID	Restores input EDID to factory default.
<a href="#">FORCEHotPlug</a>	Input	Forces the Hot Plug Detect (HPD) signal for the specified input to toggle for 10 milliseconds.
<a href="#">FTPPort</a>	System	Changes or reports the port number for FTP communication.
<a href="#">GUIPort</a>	System	Changes or reports the port number for communication using the MediaWall V Web Interface.
<a href="#">HDCPENable</a>	HDCP	Sets or reports the HDCP state (enabled or disabled) for one or all input ports.
<a href="#">HDCPINFO</a>	HDCP	Displays HDCP information for an input (IN), Wall or Switched output (OUT), or Auxiliary output (AUXOUT) port.
<a href="#">HDCPPERsist</a>	HDCP	Sets or reports the current HDCP persistence setting.
<a href="#">Help</a>	System	Without an argument, lists all commands. With an argument, displays detailed information about that command.
<a href="#">HOSTNAME</a>	System	Sets the system host name.
<a href="#">HUE</a>	Input	Sets the hue value of the selected input.
<a href="#">ID</a>	System	See <a href="#">SYStemINFO</a> .
<a href="#">INputCoLoRSPaCe</a>	Input	Sets the color space of an incoming signal for output.
<a href="#">INputENable</a>	Input	Enables or disables one or all inputs.
<a href="#">INputLabelNAME</a>	Label	Labels the specified source input. Can be used in conjunction with WindowLaBeLNAME.
<a href="#">INputSaMPLeMode</a>	Input	Sets or reports the color sample mode for the specified input.
<a href="#">INputSTATus</a>	Input	Reports an input's timing characteristics, lock state, and other information.
<a href="#">IPADDRess</a>	System	Sets the IP address for the MediaWall V 4K/UHD Display Processor.
<a href="#">IPAddrType</a>	System	Set system network IP address type to STATIC or DYNAMIC.
<a href="#">IPCoMmanDPort</a>	System	Sets or reports the command line interface session port number for Telnet.
<a href="#">IPCoMmanDTimeOUT</a>	System	Sets or reports the Telnet session inactivity timeout period, in minutes.
<a href="#">IPGateWay</a>	System	Sets the IP gateway address.



**Table 5-1 Command Summaries (Continued)**

Command	Type	Description
<a href="#"><u>IPSTATUS</u></a>	System	Displays IP network connection information.
<a href="#"><u>IPSubNET</u></a>	System	Sets the IP subnet mask.
<a href="#"><u>IPUPDate</u></a>	System	This command must be executed for IP setting changes to take effect.
<a href="#"><u>LaBeLFontDElete</u></a>	Label	Deletes a user-defined label font.
<a href="#"><u>LaBeLFontLIST</u></a>	Label	Returns information about the specified label font, or a list of all installed label fonts.
<a href="#"><u>LaBeLFontNAME</u></a>	Label	Sets or reports a font name.
<a href="#"><u>LaBeLFontSAVE</u></a>	Label	Saves an uploaded, TrueType font file (*.ttf) to a user-defined label font slot (21...50). (Slots 1 through 20 are reserved.)
<a href="#"><u>MACADDRess</u></a>	System	Displays the Ethernet MAC address.
<a href="#"><u>NTSIP</u></a>	System	Sets the IP address of up to three Network Time Servers.
<a href="#"><u>OutPutENable</u></a>	Output	Enable or disable one or all Wall outputs.
<a href="#"><u>OutPutMODE</u></a>	Output	Sets the output mode for one or all wall outputs.
<a href="#"><u>OutPutREFerence</u></a>	Output	Sets or reports the output timing reference.
<a href="#"><u>OutPutTiMing</u></a>	Output	Sets or reports a single output timing parameter, or all parameters simultaneously.
<a href="#"><u>OutPutTiMingLOAD</u></a>	Output	Sets the output display parameters from values stored in the specified Timing List entry.
<a href="#"><u>PresetDElete</u></a>	Preset	Clears the specified preset register.
<a href="#"><u>PresetFILTER</u></a>	Preset	Lets you specify which Auxiliary or Switched outputs are affected by a preset when it is loaded.
<a href="#"><u>PresetLIST</u></a>	Preset	For each preset, lists the preset number, included walls, and preset name. Empty preset entries are not shown.
<a href="#"><u>PresetLOAD</u></a>	Preset	Loads the specified preset into the MediaWall V.
<a href="#"><u>PresetNAME</u></a>	Preset	Sets or reports the name of the specified preset.
<a href="#"><u>PresetPREVIEW</u></a>	Preset	Lists key preset parameters, such as window sources, enabled state (ON or OFF) and destination rectangle information.
<a href="#"><u>PresetSAVE</u></a>	Preset	Saves the current window source and destination parameters and other characteristics (borders, labels, etc.) for all walls and auxiliary/switched outputs to the specified preset.
<a href="#"><u>RestoreFactoryDefaults</u></a>	System	Restores all user settings to their factory default values and restarts the system.
<a href="#"><u>SATuration</u></a>	Input	Sets the saturation value of the selected input.
<a href="#"><u>SETTINGSEXPORT</u></a>	System	This command provides the ability to store MediaWall V settings and export them to a computer.
<a href="#"><u>SETTINGSIMPORT</u></a>	System	This command provides the ability to restore or set system settings (or clone a new system) to match the configuration of a different MediaWall V 4K/UHD Display Processor.



**Table 5-1 Command Summaries (Continued)**

Command	Type	Description
<a href="#">SHARPNess</a>	Input	Sets the saturation value of the selected input.
<a href="#">SWitchOUTput</a>	Output	Routes an input to one or all Switched Outputs.
<a href="#">SWitchOutPutENable</a>	Output	Enables or disables one or all Switched Outputs.
<a href="#">SWitchOutPutMODE</a>	Output	Sets the output mode for one or all Switched Outputs.
<a href="#">SYStemINFO</a>	System	Displays information that uniquely identifies your MediaWall V.
<a href="#">SYStemReSeT</a>	System	Restarts the MediaWall V 4K/UHD Display Processor. This has the same effect as rebooting from power-off.
<a href="#">SYStemTIME</a>	System	Reports the current date and time, sets the internal MediaWall V real-time clock, or sets the NTP server sync interval.
<a href="#">TEMPerature</a>	System	Reports temperatures from all temperature sensors in the system.
<a href="#">TestPattern</a>	System	Turns on the selected test pattern on a wall.
<a href="#">ThumbNAIL</a>	Thumbnail	Starts or stops thumbnail processing.
<a href="#">ThumbNAILDestinationIPADDR</a>	Thumbnail	Sets or reports the multicast IP address.
<a href="#">ThumbNAILDestinationPORT</a>	Thumbnail	Sets or reports the multicast TCP port.
<a href="#">ThumbNAILINPUTLIST</a>	Thumbnail	Sets or reports the input channel list used for processing thumbnails.
<a href="#">ThumbNAILRATE</a>	Thumbnail	Sets or reports the thumbnail processing rate.
<a href="#">ThumbNAILSTATUS</a>	Thumbnail	Returns status information relating to thumbnail processing.
<a href="#">ThumbNAILTTL</a>	Thumbnail	Set the multicast streaming Time-to-Live (TTL).
<a href="#">TIMECOLOR</a>	Clock	Sets the clock text color.
<a href="#">TIMEForMaT</a>	Clock	Selects between 12-hour and 24-hour time display for the on-screen clock and enables or disables the display of seconds.
<a href="#">TimeZone</a>	Clock	Sets or reports the time zone offset in hours and minutes for a specified clock, relative to Greenwich Mean Time/Universal Coordinated Time (GMT/UTC).
<a href="#">TiMingDElete</a>	System	Deletes the specified timing set.
<a href="#">TiMingLIST</a>	System	Lists either a single timing entry or a range of saved timing entries. Without an argument, displays the entire timing list.
<a href="#">TiMingSAVE</a>	System	Creates a custom timing list entry.
<a href="#">UpdateFirmWare</a>	System	Loads new firmware into the MediaWall V.
<a href="#">VERsion</a>	System	Returns firmware and hardware version information.
<a href="#">WALLLaBeLBackGroundCOLOR</a>	Label	Sets or reports the wall label background color.
<a href="#">WALLLaBeLCOLOR</a>	Label	Sets or reports the wall label text color.
<a href="#">WALLLaBeLEnable</a>	Label	Turns a wall label on or off, or reports the current setting.



**Table 5-1 Command Summaries (Continued)**

Command	Type	Description
<a href="#"><u>WALLLaBeLFONT</u></a>	Label	Sets a wall label font.
<a href="#"><u>WALLLaBeLNAME</u></a>	Label	Applies a label to the specified wall.
<a href="#"><u>WALLLaBeLPOStion</u></a>	Label	Sets or reports the wall label position.
<a href="#"><u>WALLLaBeLSIZE</u></a>	Label	Sets or reports the wall label size.
<a href="#"><u>WALLLAYOUT</u></a>	Wall	Reports wall number, size, and output origin (top-left cube) for each configured wall.
<a href="#"><u>WALLLAYOUTDELeTe</u></a>	Wall	Deletes a custom wall layout imported using the WALLLAYOUTIMPORT command.
<a href="#"><u>WALLLAYOUTIMPORT</u></a>	Wall	Imports one or more wall layouts from an uploaded, custom wall layout file into the layout list.
<a href="#"><u>WALLLAYOUTLIST</u></a>	Wall	Lists all pre-defined and custom wall layouts.
<a href="#"><u>WALLLAYOUTLOAD</u></a>	Wall	Reboots the MediaWall V and loads a saved wall layout from the layout list.
<a href="#"><u>WALLMULLIONs</u></a>	Wall	Use this command to compensate for mullions. The horizontal and vertical spacing between displays is expressed in terms of pixels and lines, respectively.
<a href="#"><u>WALLOVERLAP</u></a>	Wall	Sets or reports the image overlap (in pixels) of adjacent outputs.
<a href="#"><u>WInDowALLOCaTe</u></a>	Window	Creates a new window on a wall, or reports the current window allocation for a wall.
<a href="#"><u>WInDowBorderCOLOR</u></a>	Window	Sets the color of the border around the specified window.
<a href="#"><u>WInDowBorderWIDTH</u></a>	Window	Sets the border width (in pixels) around the specified window.
<a href="#"><u>WInDowDESTinationRECTangle</u></a>	Window	Sets the position and size of a window's destination rectangle.
<a href="#"><u>WInDowDESTinationRECTangleRELative</u></a>	Window	Sets the destination rectangle size and position, expressed as fractions or multiples of the output resolution.
<a href="#"><u>WInDowENable</u></a>	Window	Turns the specified window on or off.
<a href="#"><u>WInDowFRaMeADJust</u></a>	Input	Provides for precise alignment of a window source rectangle with its destination rectangle.
<a href="#"><u>WInDowFREE</u></a>	Window	Un-allocates a window resource on a wall.
<a href="#"><u>WInDowFullScreen</u></a>	Window	Sizes the selected window to fill a single wall output or an entire wall.
<a href="#"><u>WInDowLaBeLBackGroundCOLOR</u></a>	Label	Sets the color of the background behind the label text for the specified window.
<a href="#"><u>WInDowLaBeLCoLoR</u></a>	Label	Sets the color of the text for the specified window label.
<a href="#"><u>WInDowLaBeLEnable</u></a>	Label	Enables the label for the specified windows.
<a href="#"><u>WInDowLaBeLFONT</u></a>	Label	Sets a window label font.
<a href="#"><u>WInDowLaBeLHorizontalPOStion</u></a>	Label	Aligns the label for the specified window with the center, left, or right of the window.



**Table 5-1 Command Summaries (Continued)**

Command	Type	Description
<a href="#"><u>WindowLaBeLNAME</u></a>	Label	Labels the specified window. Can be used in conjunction with INputLabelNAME.
<a href="#"><u>WindowLaBeLSIZE</u></a>	Label	Sets the window label font size.
<a href="#"><u>WindowLaBeLVerticalPOStion</u></a>	Label	Positions the label for the specified window at the top or bottom of the window.
<a href="#"><u>WInDowPAN</u></a>	Window	Activates the pan function for the selected window.
<a href="#"><u>WInDowPOSition</u></a>	Window	Moves the specified window.
<a href="#"><u>WInDowPRiorityList</u></a>	Window	Reports the current priority of one or all windows on a wall.
<a href="#"><u>WInDowPRioritySEQ</u></a>	Window	Given a starting priority, apply that priority sequence in the given list of windows.
<a href="#"><u>WInDowPRiorityTOP</u></a>	Window	Starting from priority 1, apply that priority sequence in the given list of windows.
<a href="#"><u>WInDowSETSTEP</u></a>	Window	Sets the horizontal and vertical increment sizes for the WInDowPAN, WInDowPOSition, WInDowSIZE, and WInDowZooM commands.
<a href="#"><u>WInDowSIZE</u></a>	Window	Adjusts the height of the specified destination window.
<a href="#"><u>WInDowSouRCe</u></a>	Window	Sets or reports the active source (input number) for one or all windows.
<a href="#"><u>WInDowSouRCeRECTangle</u></a>	Window	Defines or reports the portion of a window's source input to be mapped to an output window (destination rectangle).
<a href="#"><u>WInDowSouRCeRECTangleRELative</u></a>	Window	Sets the source rectangle for the selected input relative to the full input window size.
<a href="#"><u>WInDowSourceSTATus</u></a>	Window	Reports the signal status (present or not present) for a window. Also displays timing information if a signal is present.
<a href="#"><u>WInDowTEMPlateFILE</u></a>	Window	Imports a custom window template file.
<a href="#"><u>WInDowUNZOOM</u></a>	Window	Resets the zoom to 100% for the specified window.
<a href="#"><u>WInDowZooM</u></a>	Window	Adjusts the zoom level of the specified window.



## 5.2.1 Clock Commands

Use these commands to enable, position, and format a foreground clock.

**Table 5-2 Clock Commands**

Command	Arguments	Description
<b>CLOCKENable</b>	<wall #> <clock #   ALL> [ON   OFF]	Enables or disables the display of a foreground clock. <b>Example:</b> To display all clocks on Wall 1, use the command:  <code>clocken 1 all on</code>
<b>CLOCKPOsition</b>	<wall #> <clock #   ALL> [<X> <Y>]	Sets the coordinates of the clock when displayed. The range of values for x and y will depend on the wall configuration and output timing. Note that the clock cannot be positioned over a mullion. <b>Example:</b> To position Clock 1 on Wall 1 at x = 1000 and y = 800, use the command:  <code>clockpos 1 1 1000 800</code>
<b>CLOCKSIZE</b>	<wall #> <clock #   ALL> [SIZE1   SIZE2   SIZE3]	Sets or reports the size of an on-screen clock. <b>Example:</b> To set Clock 1 on Wall 1 to “size3,” type:  <code>clocksize 1 1 size3</code>
<b>DATEENable</b>	<wall #> <clock #   ALL> [ON   OFF]	Enables or disables the display of the date for the specified clock. <b>Example:</b> To have Clock 1 on Wall 1 display both the date and time, use the command:  <code>dateen 1 1 on</code>
<b>DATEForMaT</b>	<wall #> <clock #   ALL> [<US   ISO> <2   4>]	Selects either the United States (mm-dd-yyyy) or ISO 8601 (yyyy-mm-dd) date format for display, with either a two-digit or four-digit year. <b>Example:</b> To have all clocks on Wall 1 display the date in U.S. date format with a two-digit year, use the command:  <code>datefmt 1 all us 2</code>
<b>TIMECOLOR</b>	<wall #> <clock #   ALL> [<RedValue> <GreenValue> <BlueValue>]   [WHITE   BLACK   RED   GREEN   BLUE   MAGENTA   CYAN   YELLOW]	Sets the clock text color. You can set the color by setting the red, green, and blue values (0...255) or selecting one of eight pre-defined colors. <b>Example:</b> To set Clock 1 on Wall 1 to red = 100, green = 50, and blue = 200, enter the command:  <code>clockcolor 1 1 100 50 200</code>  Default: GREEN
<b>TIMEForMaT</b>	<wall #> <clock #   ALL> [<12   24> <SECSON   SECSOFF>]	Selects between 12-hour and 24-hour time display for the on-screen clock and enables or disables the display of seconds. <b>Example:</b> To have all clocks on Wall 1 display the time in 12-hour format including the seconds, use the command:  <code>timefmt 1 all 12 secson</code>  Default: 24, On



**Table 5-2 Clock Commands (Continued)**

Command	Arguments	Description
TimeZone	<wall #> <clock #   ALL> [<-12...-1> <0   30>]   [<0> <-30   0...59>]   [<1...12> <0...59>]	Sets or reports the time zone offset in hours and minutes for a specified clock, relative to Greenwich Mean Time/Universal Coordinated Time (GMT/UTC). The <i>MediaWall V</i> must be rebooted before the new time zone setting takes effect. Without the hour and minute arguments, the command returns the current time zone value. <b>Examples:</b> To set the time zone for Clock 1 on Wall 1 to United States Pacific Standard Time, use the command: <pre>tz 1 1 -8 0</pre> To set the time zone for Clock 1 on Wall 1 to GMT/UTC minus 30 minutes, use the command: <pre>tz 1 1 0 -30</pre> Default: 0 0 (GMT/UTC)

### 5.2.2 EDID Commands

Use EDID commands to acquire EDID from connected devices, import or export EDID, load specific EDID, and manage the EDID list.

**Table 5-3 EDID Commands**

Command	Arguments	Description
EdiDCAPture	<11...60> <OUT   AUXOUT   SWOUT> <1...24   1...4   7...24>	Captures EDID from the device on a Wall, Auxiliary, or Switched output to the EDID list. <b>Note:</b> EDID list entries 1 through 10 are factory-reserved. <b>Example:</b> To capture Wall Output 1 EDID to list entry 11, enter the command: <pre>edcap 11 out 1</pre> <b>Example:</b> To capture Auxiliary Output 2 EDID to list entry 22, enter the command: <pre>edcap 22 auxout 2</pre> <b>Example:</b> To capture Switched Output 19 EDID to list entry 33, enter the command: <pre>edcap 33 out 19</pre>
EdiDDElete	<11...60>	Deletes a user EDID list entry. <b>Example:</b> To delete entry 27, type: <pre>eddel 27</pre>
EdiDEXPORT	<11...60> [filename]	Exports user EDID from the list to a file. <b>Example:</b> To export list entry 15 to the file "MONITOR123.dat," use the command: <pre>edexport 15 MONITOR123.dat</pre> <b>Note:</b> If you do not specify a file name, the exported EDID file will be named <b>phoenix_edid.dat</b> .



**Table 5-3 EDID Commands (Continued)**

Command	Arguments	Description																																																								
<b>EdiDIMPORT</b>	<11...60> [filename]	Imports EDID from an uploaded file to the EDID list. <b>Example:</b> To import EDID from the file “Apollo.dat” to list entry 33, upload the file to the <i>MediaWall V</i> using FTP. Then, enter the command: <pre>edimport 33 Apollo.dat</pre> <b>Note:</b> If you do not specify a file name, the <i>MediaWall V</i> will look for an uploaded EDID file named <b>phoenix_edid.dat</b> . If that file is not present, the <i>MediaWall V</i> returns an error message.																																																								
<b>EdiDINFO</b>	<IN   OUT   AUXOUT   SWOUT> <1...36   1...24   1...4   7...24>	Displays EDID information for an input or output port.  <b>Example:</b> To display EDID for Input 3, type: <pre>user&gt;edinfo in 3</pre> <table border="1"> <thead> <tr> <th>NUM</th> <th>EDID Name</th> <th>MID</th> <th>PID</th> <th>Monitor Name</th> <th>Preferred Timing</th> <th>IL</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>INPUT</td> <td>RGB</td> <td>MWV</td> <td>MWV</td> <td>1920x1200@59.00</td> <td>0</td> </tr> </tbody> </table> <b>Example:</b> To display EDID for Wall Output 5, use the command: <pre>user&gt;edinfo out 5</pre> <table border="1"> <thead> <tr> <th>NUM</th> <th>EDID Name</th> <th>MID</th> <th>PID</th> <th>Monitor Name</th> <th>Preferred Timing</th> <th>IL</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>OUTPUT</td> <td>DEL</td> <td>A007</td> <td>DELL 2001FP</td> <td>1600x900 @59.94</td> <td>0</td> </tr> </tbody> </table> <b>Example:</b> To display EDID for Auxiliary Output 1, use the command: <pre>user&gt;edinfo auxout 1</pre> <table border="1"> <thead> <tr> <th>NUM</th> <th>EDID Name</th> <th>MID</th> <th>PID</th> <th>Monitor Name</th> <th>Preferred Timing</th> <th>IL</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>AUX OUTPUT</td> <td>VSC</td> <td>E627</td> <td>V3D245</td> <td>1920x1080 @60.00</td> <td>0</td> </tr> </tbody> </table> <b>Example:</b> To display EDID for Switched Output 9, use the command: <pre>user&gt;edinfo swout 9</pre> <table border="1"> <thead> <tr> <th>NUM</th> <th>EDID Name</th> <th>MID</th> <th>PID</th> <th>Monitor Name</th> <th>Preferred Timing</th> <th>IL</th> </tr> </thead> <tbody> <tr> <td>9</td> <td>SW OUTPUT</td> <td>SAM</td> <td>426</td> <td>SyncMaster</td> <td>1920x1200 @59.95</td> <td>0</td> </tr> </tbody> </table>	NUM	EDID Name	MID	PID	Monitor Name	Preferred Timing	IL	3	INPUT	RGB	MWV	MWV	1920x1200@59.00	0	NUM	EDID Name	MID	PID	Monitor Name	Preferred Timing	IL	5	OUTPUT	DEL	A007	DELL 2001FP	1600x900 @59.94	0	NUM	EDID Name	MID	PID	Monitor Name	Preferred Timing	IL	1	AUX OUTPUT	VSC	E627	V3D245	1920x1080 @60.00	0	NUM	EDID Name	MID	PID	Monitor Name	Preferred Timing	IL	9	SW OUTPUT	SAM	426	SyncMaster	1920x1200 @59.95	0
NUM	EDID Name	MID	PID	Monitor Name	Preferred Timing	IL																																																				
3	INPUT	RGB	MWV	MWV	1920x1200@59.00	0																																																				
NUM	EDID Name	MID	PID	Monitor Name	Preferred Timing	IL																																																				
5	OUTPUT	DEL	A007	DELL 2001FP	1600x900 @59.94	0																																																				
NUM	EDID Name	MID	PID	Monitor Name	Preferred Timing	IL																																																				
1	AUX OUTPUT	VSC	E627	V3D245	1920x1080 @60.00	0																																																				
NUM	EDID Name	MID	PID	Monitor Name	Preferred Timing	IL																																																				
9	SW OUTPUT	SAM	426	SyncMaster	1920x1200 @59.95	0																																																				
<b>EdiDLIST</b>	[1...60]   [<1...59> <2...60>]	Displays one or more EDID list entries. <b>Example:</b> To report list entry 4, enter the command: <pre>edlist 4</pre> <b>Example:</b> To report list entries 12 through 20, enter the command: <pre>edlist 12 20</pre>																																																								
<b>EdiDLOAD</b>	<input #   ALL> <1...60>	Loads EDID from the EDID list to one or all input PROMs. <b>Example:</b> To load EDID list entry 2 (3840 × 2160 @30 Hz) to Input 5, type: <pre>edload 5 2</pre>																																																								
<b>EdiDNAME</b>	<11...60> <name>	Names a user EDID list entry (numbers 11 through 60). <b>Example:</b> To name EDID list entry 23 “XENA.dat,” type: <pre>edname 23 XENA.dat</pre>																																																								





**Table 5-3 EDID Commands (Continued)**

Command	Arguments	Description
<b>EdiDRFD</b>	<input #   ALL>	Restores input EDID to factory default. <b>Example:</b> To restore the factory EDID to all inputs, type the command: <code>edrfd all</code>

### 5.2.3 HDCP Commands

[Table 5-4](#) describes the *MediaWall V* HDCP commands.

**Table 5-4 HDCP Commands**

Command	Arguments	Description
<b>HDCPENable</b>	<input #   ALL> [ON   OFF]	Sets or reports the HDCP state (enabled or disabled) for one or all input ports. <b>Example:</b> To enable HDCP on Input 3, type: <code>hdcpen 3 on</code> Default: ON
<b>HDCPINFO</b>	<IN   OUT   AUXOUT> [port #]	Displays HDCP information for an input (IN), Wall or Switched output (OUT), or Auxiliary output (AUXOUT) port. Omit the port number to see HDCP information for all ports of the specified type. <b>Example:</b> To display HDCP information for Input 3, type: <pre>user&gt;hdcpinfo in 3 IN      Authenticated      SourceDevStartAuth ----- 3       Yes                  Yes</pre> <b>Example:</b> To display HDCP information for Output 5 and start a new HDCP session on that output, type: <pre>user&gt;hdcpinfo out 5 OUT Encrypted SinkType      LinkStatus      SinkKSV      BCAPS      BSTATUS ----- 5    No         HdmiNoneHDCP  Normal         B1FC312DC8  0x80      0x1000</pre> <b>Example:</b> To display HDCP information for all Auxiliary outputs, type: <pre>user&gt;hdcpinfo auxout OUT Encrypted SinkType      LinkStatus      SinkKSV      BCAPS      BSTATUS ----- 1    No         DviReceiver    Normal         1700000000  0x80      0x1000 2    No         DviNoneHDCP   Normal         0000000000  0x00      0x1000 3    No         DviNoneHDCP   Normal         0000000000  0x00      0x1000 4    No         HdmiNoneHDCP  Normal         0000000000  0x00      0x1000</pre> For detailed technical information about HDCP, please visit <a href="http://digital-cp.com">http://digital-cp.com</a> .



**Table 5-4 HDCP Commands (Continued)**

Command	Arguments	Description
<b>HDCPPERsist</b>	<HDMI output #   ALL> [ON   OFF]	<p>Sets or reports the current HDCP persistence setting. When set to ON, the <i>MediaWall V</i> retains the previously-negotiated HDCP encryption state. This minimizes wall output flashing that can occur when you recall a preset that includes HDCP content.</p> <p><b>Note:</b> This setting affects HDMI wall outputs only.</p> <p><b>Example:</b> To enable HDCP persistence on all HDMI wall outputs, type:</p> <pre>hdccper all on</pre> <p>Default: ALL OFF</p>

### 5.2.4 Input Commands

Input commands allow you to make input adjustments, and then save these settings into the unit's internal memory. [Table 5-5](#) lists all input commands, their arguments, and detailed descriptions.

**Table 5-5 Input Commands**

Command	Arguments	Description
<b>BR</b> ightness	<input #   ALL> <-127...128>	<p>Sets the brightness value of the selected input. The <b>ALL</b> argument sets brightness for all inputs.</p> <p><b>Example:</b> To set the brightness for Input 3 to 100, type the command:</p> <pre>bri 3 100</pre> <p>Default: 0</p>
<b>CON</b> trast	<input #   ALL> <0...255>	<p>Sets the contrast value of the selected input. The <b>ALL</b> argument sets contrast for all inputs.</p> <p><b>Example:</b> To set the contrast to 110 for all inputs, use the command:</p> <pre>con all 110</pre> <p>Default: 128</p>
<b>FORCE</b> HotPlug	<input #>	<p>Forces the Hot Plug Detect (HPD) signal for the specified input to toggle for 10 milliseconds.</p> <p><b>Example:</b> To force a hot plug event on Input 1, enter the command:</p> <pre>forcehp 1</pre>
<b>HUE</b>	<input #   ALL> <-180...180>	<p>Sets the hue value of the selected input. Use the <b>ALL</b> argument to set the hue for all inputs simultaneously.</p> <p><b>Example:</b> To set the hue for Input 2 to -15, use the command:</p> <pre>hue 2 -15</pre> <p>Default: 0</p>



**Table 5-5 Input Commands (Continued)**

Command	Arguments	Description
<b>INputCoLoRSPaCe</b>	<input #> [ AUTO   BT601   BT709   RGB]	<p>Sets the color space of an incoming signal for output. Choose one of the following:</p> <ul style="list-style-type: none"> <li>◆ <b>AUTO</b></li> <li>◆ <b>BT601</b> (ITU-R BT.601, SDTV/EDTV color space matrix)</li> <li>◆ <b>BT709</b> (ITU-R BT.709, HDTV color space matrix)</li> <li>◆ <b>RGB</b></li> </ul> <p><b>Example:</b> To change the color space for Input 1 to RGB, type:</p> <pre>inclrspc 1 rgb</pre> <p>Default: AUTO</p> <p>For more information about this command, refer to <a href="#">Color Space</a> in Chapter 3.</p>
<b>INputENable</b>	<1 ... 36   ALL> [ON   OFF]	<p>Enables or disables one or all inputs.</p> <p><b>Note:</b> On a <i>MediaWall V</i> equipped with an optional Application Processor (model 500AP-4K or 550AP-4K), you cannot disable Input 5 or Input 6.</p> <p><b>Example:</b> To disable Input 2, use the command:</p> <pre>inen 2 off</pre> <p>Default: ALL ON</p>
<b>INputSaMPLeMode</b>	<input #> <AUTO   444   422 >	<p>Sets or reports the color sample mode for the specified input. Choose one of the following:</p> <ul style="list-style-type: none"> <li>◆ <b>AUTO</b> (auto-detect sample mode of incoming signal);</li> <li>◆ <b>444</b> (full, continuous color sampling); or</li> <li>◆ <b>422</b> (sub-sampled colors)</li> </ul> <p><b>Example:</b> To change the sample mode for Input 1 to <b>422</b>, use this command:</p> <pre>insmplm 1 422</pre> <p>Default: AUTO</p>
<b>INputSTATus</b>	<input #>	<p>Reports an input's timing characteristics, lock state, and other information.</p> <p><b>Example:</b> To display status information for Input 2, type:</p> <pre>user&gt;instat 2 SIGNAL_PRESENT: Yes  TIME_LOCKED: 18342.21 PORT_TYPE: HDMI     MODE: HDMI COLOR_SPACE: RGB    SAMPLE_MODE: 4:4:4 DCP_TYPE: HDCP HDCP_AUTHENTICATED: NO HDCP_SOURCE_DEV_AUTH_START: NO  HACT  VACT  (VFREQ)  SCAN  PIXFREQ 1920  1080  (60.00)  p     148492187  HFP  HS  HBP  (HTOT)  VFP  VS  VBP  (VTOT)  (HFREQ)  HPOL  VPOL 88   44  148  (2200)  4.0  5.0  36.0  (1125)  (67496 )  +    +</pre>



**Table 5-5 Input Commands (Continued)**

Command	Arguments	Description
<b>SATuration</b>	<input #   ALL> <0...255>	<p>Sets the saturation value of the selected input. Use the <b>ALL</b> argument to set the saturation for all inputs simultaneously.</p> <p><b>Example:</b> To set the saturation for all inputs to 90, enter the command:</p> <pre>sat all 90</pre> <p>Default: 128</p>
<b>SHARPNess</b>	<input #   ALL> [-10...5]	<p>Sets the sharpness setting for the selected input. Positive values sharpen the image and negative values soften the image. A value of zero sets the sharpness off.</p> <p><b>Example:</b> To set the sharpness on Input 4 to 2, use the command:</p> <pre>sharp 4 2</pre> <p>Default: 0</p>

### 5.2.5 Label Commands

Use these commands to apply descriptive labels to sources/inputs, windows, and walls, change their appearance, and manage label fonts.

[Table 5-6](#) lists all label commands, their arguments, and detailed descriptions.

**Table 5-6 Label Commands**

Command	Arguments	Description
<b>INputLabelNAME</b>	<input #> <name>	<p>Labels the specified source input. Can be used in conjunction with <a href="#">WindowLaBeLNAME</a>.</p> <p>The argument can be up to 64 alphanumeric characters with no spaces (use the underscore character in place of a space).</p> <p><b>Example:</b> To label Input 4 “Station_1,” type:</p> <pre>inlname 4 Station_1</pre>
<b>LaBeLFontDElete</b>	<userfontslot #:21...50   ALL>	<p>Deletes a user-defined label font.</p> <p><b>Example:</b> To delete label font number 21, type:</p> <pre>lblfdel 21</pre>



**Table 5-6 Label Commands (Continued)**

Command	Arguments	Description
<b>LaBeLFontLIST</b>	<fontslot #:1...50   ALL>  <b>Example:</b> <pre>user&gt;lblflist all Slot_num  TTF_file_name          Description ----- 1         segoeui.ttf              English font 2         fely.ttf                 English font 3         segoeuisymbol.ttf       English font 4         goudystmtt.ttf           English font : : 50</pre>	Returns information about the specified label font, or a list of all installed label fonts.
<b>LaBeLFontNAME</b>	<fontslot #> [name]	Sets or reports a font name.
<b>LaBeLFontSAVE</b>	<userfontslot #: 21...50> <font file name> <description>	Saves an uploaded, TrueType font file (*.ttf) to a user-defined label font slot (21...50). (Slots 1 through 20 are reserved.) To upload and save a new font: <b>1.</b> For command-line FTP, use the command <pre>put &lt;font_file_name&gt;.ttf</pre> to transfer the font file to the <i>MediaWall V</i> ;  <b>– OR –</b>  Use Windows Explorer to transfer the font file. Refer to <a href="#">Using FTP on page 145</a> for more information. <b>2.</b> From the Telnet or serial port, issue the command <pre>labelfontsave &lt;userfontslot&gt; &lt;font file name&gt; &lt;description&gt;</pre> <b>Note:</b> Font file names are case-sensitive. <b>The .ttf file name extension must be in lowercase.</b> <b>Example:</b> To save the uploaded label font file <b>arial.ttf</b> in font slot number 21 with the description <b>Sans_Serif-1</b> , type: <pre>lblfsave 21 arial.ttf Sans_Serif-1</pre>
<b>WALLLaBeLBackGroundCOLOR</b>	<wall #> <walllabel #   ALL> [<red> <green> <blue>]   [WHITE   BLACK   RED   GREEN   BLUE   MAGENTA   CYAN   YELLOW   TRANSPARENT]	Sets or reports the wall label background color. You can set the color using red, green, and blue values (0...255), or a pre-defined color. <b>Example:</b> To set the background color for Wall 1, Label 1 to red=51, green=0, and blue=153, type: <pre>walllblbgcolor 1 1 51 0 153</pre>



**Table 5-6 Label Commands (Continued)**

Command	Arguments	Description
<b>WALLLaBeLCOLOR</b>	<wall #> <walllabel #   ALL> [<red> <green> <blue>]   [WHITE   BLACK   RED   GREEN   BLUE   MAGENTA   CYAN   YELLOW]	Sets or reports the wall label text color. You can set the color using red, green, and blue values (0...255), or a pre-defined color. <b>Example:</b> To set the text color for Wall 1, Label 1 to green, type:  <code>walllblcolor 1 1 green</code>
<b>WALLLaBeLEnable</b>	<wall #> <walllabel #   ALL> [ON   OFF]	Turns a wall label on or off, or reports the current setting. <b>Example:</b> To turn off all labels on Wall 1, type:  <code>wallblen 1 all off</code>
<b>WALLLaBeLFONT</b>	<wall #> <walllabel #   ALL> [fontslot #]	Sets a wall label font. <b>Example:</b> To display Wall 1, Label 1 using font number 1, type:  <code>walllblfont 1 1 1</code>
<b>WALLLaBeLNAME</b>	<wall #> <walllabel #> [label]	Applies a label to the specified wall. The label can be up to 64 alphanumeric characters with no spaces (use the underscore character in place of a space). <b>Example:</b> To set Wall 1, Label 1 to “Main_Wall,” type:  <code>walllblname 1 1 Main_Wall</code>
<b>WALLLaBeLPOStion</b>	<wall #> <walllabel #> [<0...16384> <0...8640>]	Sets or reports the wall label position. The last two arguments specify the horizontal and vertical offsets from the upper-left corner (0,0) of the wall. The ranges listed here are absolute maximums, for a wall of 2048 × 1080 displays eight columns wide or eight rows high. The actual, usable ranges will depend on your wall geometry and the resolution of each display. <b>Example:</b> To position Wall 1, Label 1 in the center of a 3 × 3 wall of 2048 × 1080 displays, type:  <code>walllblpos 1 1 3071 1619</code>
<b>WALLLaBeLSIZE</b>	<wall #> <walllabel #   ALL> [SIZE1   SIZE2   SIZE3   SIZE4]	Sets or reports the wall label size. <b>Example:</b> To set the size of Wall 1, Label 1 to SIZE4, type:  <code>walllblsize 1 1 size4</code>



**Table 5-6 Label Commands (Continued)**

Command	Arguments	Description
<b>WindowLaBeLBackGroundCOLOR</b>	<wall #> <window #   ALL> <INPUT   WINDOW> [<red> <green> <blue>]   [WHITE   BLACK   RED   GREEN   BLUE   MAGENTA   CYAN   YELLOW   TRANSPARENT]	<p>Sets the color of the background behind the label text for the specified window.</p> <p>Specify <b>input</b> to apply this setting to all windows populated by that input, or <b>window</b> to affect a single instance of that input on the wall.</p> <p>You can set the color using red, green, and blue values (0...255), or a pre-defined color.</p> <p>To hide the window label background, use the <b>transparent</b> argument.</p> <p><b>Example:</b> To set the Wall 1/Window 3 label background to magenta, type:</p> <pre>wlblbgcolor 1 3 window magenta</pre> <p><b>Example:</b> To set the label background for all windows displaying Input 3 on Wall 1 to red=50, green=32, and blue=0, type:</p> <pre>wlblbgcolor 1 3 input 50 32 0</pre> <p><b>Example:</b> To hide the label background for all windows displaying Input 3 on Wall 1, type:</p> <pre>wlblbgcolor 1 3 input transparent</pre>
<b>WindowLaBeLCOLOR</b>	<wall #> <window #   ALL> <INPUT   WINDOW> [<red> <green> <blue>]   [WHITE   BLACK   RED   GREEN   BLUE   MAGENTA   CYAN   YELLOW]	<p>Sets the color of the text for the specified window label.</p> <p>Specify <b>input</b> to apply this setting to all windows populated by that input, or <b>window</b> to affect a single instance of that input on the wall.</p> <p>You can set the color using red, green, and blue values (0...255), or a pre-defined color.</p> <p><b>Example:</b> To set the color of the Wall 1/ Window 3 label text to red=0, green=200, and blue=100, type:</p> <pre>wlblcolor 1 3 window 0 200 100</pre>
<b>WindowLaBeLEnable</b>	<wall #> <window #   ALL> <INPUT   WINDOW> [ON   OFF]	<p>Enables the label for the specified windows.</p> <p>Use the ALL option to enable or disable all labels simultaneously.</p> <p>Specify <b>input</b> to apply this setting to all windows populated by that input, or <b>window</b> to affect a single instance of that input on the wall.</p> <p><b>Example:</b> To turn off labels for all windows on Wall 1, type:</p> <pre>wblen 1 all window off</pre>



**Table 5-6 Label Commands (Continued)**

Command	Arguments	Description
<b>WindowLaBeLFONT</b>	<wall #> <window #   ALL> <INPUT   WINDOW> [font slot #]	<p>Sets a window label font.</p> <p>Specify <b>input</b> to apply this setting to all windows populated by that input, or <b>window</b> to affect a single instance of that input on the wall.</p> <p><b>Example:</b> To display the Wall 1/Window 3 label using font number 1, type:</p> <pre>wlblfont 1 3 window 1</pre>
<b>WindowLaBeLHorizontalPOStion</b>	<wall #> <window #   ALL> <INPUT   WINDOW> [LEFT   CENTER   RIGHT]	<p>Aligns the label for the specified window with the center, left, or right of the window.</p> <p>See also <a href="#">WindowLaBeLVerticalPOStion</a> for details on positioning vertically.</p> <p>Specify <b>input</b> to apply this setting to all windows populated by that input, or <b>window</b> to affect a single instance of that input on the wall.</p> <p>Use the command with no arguments to return the current value.</p> <p><b>Example:</b> To center the text of the Wall 1/ Window 3 label, use the command:</p> <pre>wlblhpos 1 3 window center</pre> <p>Default: CENTER (for window labels); RIGHT (for input labels)</p>
<b>WindowLaBeLNAME</b>	<wall #> <window #> [label]	<p>Labels the specified window. Can be used in conjunction with <a href="#">INputLabelNAME</a>.</p> <p>The argument can be up to 64 alphanumeric characters with no spaces (use the underscore character in place of a space).</p> <p><b>Example:</b> To label Wall 1, Window 4 “Station_1,” type:</p> <pre>wlblname 1 4 Station_1</pre>
<b>WindowLaBeLSIZE</b>	<wall #> <window #   ALL> <INPUT   WINDOW> [SIZE1   SIZE2   SIZE3   SIZE4]	<p>Sets the window label font size.</p> <p>Specify <b>input</b> to apply this setting to all windows populated by that input, or <b>window</b> to affect a single instance of that input on the wall.</p> <p><b>Example:</b> To set font size for the Wall 1/ Window 3 label to SIZE4, use the command:</p> <pre>wlblsize 1 3 window size4</pre>





**Table 5-6 Label Commands (Continued)**

Command	Arguments	Description
<b>WindowLaBeLVerticalPOSition</b>	<wall #> <window #   ALL> <INPUT   WINDOW> [TOP1   TOP2   TOP3   TOP4   BOTTOM1   BOTTOM2   BOTTOM3   BOTTOM4]	Positions the label for the specified window at the top or bottom of the window. See also <a href="#">WindowLaBeLHorizontalPOSition</a> for details on positioning horizontally. Specify <i>input</i> to apply this setting to all windows populated by that input, or <i>window</i> to affect a single instance of that input on the wall. <b>Example:</b> To place the Wall 1/Window 3 label at the bottom, use one of the following: <pre>wlblvpos 1 3 window bottom1 wlblvpos 1 3 window bottom2 wlblvpos 1 3 window bottom3 wlblvpos 1 3 window bottom4</pre> Default: BOTTOM3



## 5.2.6 Output Commands

Use the commands listed in [Table 5-7](#) to enable or disable outputs, define output timings and sync formats, and save, load, and delete timings to or from the Output Timing List.

**Table 5-7 Output Commands**

Command	Arguments	Description
<b>AUXOUT</b> put	<1 ... 4   ALL> [1 ... 36]	<p>Routes an input to one or all auxiliary outputs.</p> <p><b>Example:</b> To route Input 5 to Auxiliary Output 1, type:</p> <pre>auxout 1 5</pre> <p><b>Example:</b> To route Input 4 to all Auxiliary Outputs, type:</p> <pre>auxout all 4</pre>
<b>AUXOutPut</b> ENable	<1 ... 4   ALL> [ON   OFF]	<p>Enables or disables one or all auxiliary outputs.</p> <p><b>Example:</b> To enable Auxiliary Output 1, type:</p> <pre>auxopen 1 on</pre>
<b>AUXOutPut</b> MODE	<1 ... 4   ALL> [AUTO   HDMI   DVI]	<p>Sets the output mode for one or all auxiliary outputs. Choose one of the following:</p> <ul style="list-style-type: none"> <li>◆ <b>AUTO</b> sets the output mode to DVI or HDMI based on the EDID from the connected display.</li> <li>◆ <b>DVI</b> mode forces the output mode to DVI.</li> <li>◆ <b>HDMI</b> mode forces the output mode to HDMI.</li> </ul> <p><b>Example:</b> To force the output mode to DVI on Auxiliary Output 2, type:</p> <pre>auxopmode 2 dvi</pre>
<b>BackGround</b> COLOR	[<RedValue> <GreenValue> <BlueValue>]   [WHITE   BLACK   RED   GREEN   BLUE   MAGENTA   CYAN   YELLOW]	<p>Sets the wall background color. You can set the color using 8-bit red, green, and blue values (0...255), or a pre-defined color.</p> <p><b>Examples:</b></p> <p>To set the background to a custom color with the values red = 100, green = 100, and blue = 225, use the command:</p> <pre>bgcolor 100 100 225</pre> <p>To set the background color to gray, use the command:</p> <pre>bgcolor 127 127 127</pre> <p>To set the background color to white, use one of the following:</p> <pre>bgcolor white</pre> <pre>bgcolor 255 255 255</pre> <p>To set the background color to cyan, type:</p> <pre>bgcolor cyan</pre>



**Table 5-7 Output Commands (Continued)**

Command	Arguments	Description
<b>OutPutENable</b>	<1 ... 24   ALL> [ON   OFF]	Enable or disable one or all Wall outputs. <b>Example:</b> To disable Wall Output 2, use the command: <pre>open 2 off</pre> Default: ALL ON
<b>OutPutMODE</b>	<1 ... 24   ALL> [AUTO   HDMI   DVI]	Sets the output mode for one or all wall outputs. (Refer to <a href="#">AUXOutPutMODE</a> .) <b>Example:</b> To force the output mode to DVI on Wall Output 2, type: <pre>opmode 2 dvi</pre>
<b>OutPutREFerence</b>	[INT   EDID]	Sets or reports the output timing reference. When you select <b>EDID</b> , the <i>MediaWall V</i> determines the output format from the display device connected to Output 1, and automatically loads the timing values to match the requirements of the display. Select <b>INT</b> to load timing values manually from the internal timing list. <b>Example:</b> To enable the use of a Timing List entry, type: <pre>opref int</pre> Default: INT
<b>OutPutTiMing</b>	[<hfp> <hs> <hbp> <hact> <vfp> <vs> <vbp> <vact> [<hfreq> <sync> <hpol> <vpol>]]   [HFP   HS   HBP   HACT   VFP   VS   VBP   VACT   HFREQ   SYNC   HPOL   VPOL] [value]]	Sets or reports a single output timing parameter, or all parameters simultaneously. Refer to <a href="#">Table 5-13</a> for timing parameter descriptions.  <b>Example:</b> To see all output timing value parameters, type: <pre>user&gt;optm HACT  VACT  (VFREQ)  SCAN  PIXFREQ 3840  2160  (30.00)  p      297000000  HFP  HS  HBP  (HTOT)  VFP  VS  VBP  (VTOT)  (HFREQ)  HPOL  VPOL 176  88  296  (4400)  8.0  10.0  72.0  (2250)  (67500)  +    +</pre> <b>Example:</b> To set the <b>vsync</b> value to 3, type: <pre>optm vs 3</pre> <b>Example:</b> To set values for parameters <b>hfp</b> through <b>vact</b> , type: <pre>optm 48 112 248 1280 1 3 38 1024</pre>



**Table 5-7 Output Commands (Continued)**

Command	Arguments	Description
<b>OutPutTiMingLOAD</b>	<1...160>	<p>Sets the output display parameters from values stored in the specified Timing List entry.</p> <p><b>In order to use this command, you must first set <a href="#">OutPutREference</a> to INT.</b></p> <p>Note that timing list entries 1...99 are reserved for factory defined timing parameters. Entries 100...160 are user-defined. Refer to the <a href="#">Factory Timing List</a> for details on all entries and timings.</p> <p><b>Example:</b> To set the output timing to the values in user entry 114, use the command:</p> <pre>optmload 114</pre>
<b>SWitchOUTput</b>	<7 ... 24   ALL> [1 ... 36]	<p>Routes an input to one or all Switched Outputs.</p> <p><b>Example:</b> To route Input 5 to Switched Output 7, type:</p> <pre>swout 7 5</pre> <p><b>Example:</b> To route Input 12 to all Switched Outputs, type:</p> <pre>swout all 12</pre>
<b>SWitchOutPutENable</b>	<7 ... 24   ALL> [ON   OFF]	<p>Enables or disables one or all Switched Outputs.</p> <p><b>Example:</b> To enable Switched Output 7, type:</p> <pre>swopen 7 on</pre> <p><b>Example:</b> To disable all Switched Outputs, type:</p> <pre>swopen all off</pre>
<b>SWitchOutPutMODE</b>	<7 ... 24   ALL> [AUTO   HDMI   DVI]	<p>Sets the output mode for one or all Switched Outputs.</p> <p>(Refer to <a href="#">AUXOutPutMODE</a>.)</p> <p><b>Example:</b> To force the output mode to DVI on Switched Output 8, type:</p> <pre>swopmode 8 dvi</pre>



## 5.2.7 Preset Commands

Use the Preset Commands to manage system configuration presets. [Table 5-9](#) lists all preset commands, their arguments and detailed descriptions. For more information about presets, refer to [Presets](#) in [Chapter 6](#).

**Table 5-8 Preset Commands**

Command	Arguments	Description
<b>PresetDELe</b>	<1...60>	Clears the specified preset register. <b>Example:</b> To delete preset 21, type: <pre>pdel 21</pre>
<b>PresetFILTeR</b>	<aux   som> <1 ... 4   7 ... 24   ALL> [on   off]	Lets you specify which Auxiliary or Switched outputs are affected by a preset when it is loaded. By default, no filtering occurs; that is, all Auxiliary and Switched outputs are affected by a preset when it is loaded. <b>Examples:</b> If you want only Auxiliary output 2 and Switched output 7 to be affected by a preset when it is loaded, use these commands: <pre>pfilter aux 2 on</pre> <pre>pfilter som 7 on</pre> If you want all Auxiliary and Switched outputs to be affected by a preset when it is loaded (that is, to restore the default behavior), use these commands: <pre>pfilter aux all on</pre> <pre>pfilter som all on</pre>
<b>PresetLIST</b>	[1...60]	For each preset, lists the preset number, included walls, and preset name. Empty preset entries are not shown. Omit the argument to list all presets. <b>Example:</b> To display details of preset 14, enter the command: <pre>plist 14</pre>



**Table 5-8 Preset Commands (Continued)**

Command	Arguments	Description
<b>PresetLOAD</b>	<1...60> [<wall #>]   <wall #> <wall #>] [0]	<p>Loads the specified preset into the <i>MediaWall V</i>. You can load a preset to one or two walls only, leaving the other walls unchanged.</p> <p><b>Examples:</b></p> <p>To load preset 23 into all walls, use the command:</p> <pre>pload 23</pre> <p>To load preset 8 into Wall 3 only, use the command:</p> <pre>pload 8 3</pre> <p>Presets also contain state information for Switched and Auxiliary outputs. To load a preset to the Switched and Auxiliary outputs only – leaving all walls unchanged – specify the present number followed by "0".</p> <p><b>Example:</b> To load preset 10 to the Auxiliary and Switched outputs only, leaving the wall(s) unchanged, use the command:</p> <pre>pload 10 0</pre>
<b>PresetNAME</b>	<1...60> [name]	<p>Sets or reports the name of the specified preset. The name is a string of up to 23 characters in length and may consist of any readable ASCII character except for spaces. See also <a href="#">PresetLIST</a>.</p> <p><b>Example:</b> To name preset 18 "Training_Room," type:</p> <pre>pname 18 Training_Room</pre>
<b>PresetPREVIEW</b>	<1...60>	<p>Lists key preset parameters, such as window sources, enabled state (ON or OFF) and destination rectangle information.</p> <p><b>Example:</b></p> <pre>admin&gt;ppreview 3</pre> <pre>NUMBER  NAME</pre> <pre>3        6_windows_rows_1and3</pre> <pre>Wall 1</pre> <pre>Win  En  In#            WDR            Pri Start End Type</pre> <pre>-----+-----+-----+-----+-----+-----+-----+-----</pre> <pre>1  On  5  ( 0, 0) 1920x1080   7  1   1  UHD</pre> <pre>2  On  1  ( 1920, 0) 1920x 540   2  1   1   HD</pre> <pre>3  On  11  ( 1920, 540) 960x 540   3  1   1   HD</pre> <pre>4  On  5  ( 1920, 2160) 1920x1080   5  3   3  UHD</pre> <pre>5  On  1  ( 0, 2160) 1920x 540   6  3   3   HD</pre> <pre>6  On  12  ( 0, 2700) 960x 540   8  3   3   HD</pre>
<b>PresetSAVE</b>	<1...60>	<p>Saves the current window source and destination parameters and other characteristics (borders, labels, etc.) for all walls and auxiliary/switched outputs to the specified preset.</p> <p><b>Example:</b> To save the current state of all walls and auxiliary/switched outputs to preset 4, type:</p> <pre>psave 4</pre> <p><b>Note:</b> If the specified preset register is not empty, this command will fail and produce an error message.</p>



## 5.2.8 System Commands

Use the System Commands to view or change serial and IP communication parameters, and perform various other tasks. [Table 5-9](#) lists all system commands, their arguments and detailed descriptions.

**Table 5-9 System Commands**

Command	Arguments	Description
<b>ADMINENTER</b>	(none)	Puts the current command-line session in administrator mode. You will be prompted for the administrator password. The default administrator password is RGB (uppercase). To change it, use the <a href="#">ADMINPASSWD</a> command.
<b>ADMINEXIT</b>	(none)	Puts the current command-line session in user mode. No password is needed.
<b>ADMINPASSWD</b>	(none)	Changes the administrator password. To do this: <ol style="list-style-type: none"> <li>1. Type <code>adminpasswd</code> and press Enter.</li> <li>2. Type the current password, then press Enter.</li> <li>3. Type a new password, then press Enter. The new password must be at least six (6) and not more than 64 characters long. The password can contain any combination of alphabetic and numeric characters, as well as the following special characters: <code>! " # \$ % &amp; ' ( ) * + , - . / : ; &lt; = &gt; ? @ [ \ ] ^ _ \ ` {   } = ~</code></li> </ol> <p><b>Note:</b> Passwords are case-sensitive.</p> <ol style="list-style-type: none"> <li>4. Type the new password again, then press Enter.</li> </ol>
<b>BAUDrate</b>	<9600   19200   38400   57600   115200>	Sets the serial port baud rate. <b>Example:</b> To set the baud rate to 38400, enter the command: <code>baud 38400</code> Default: 115200 <b>Note:</b> When the <i>MediaWall V</i> is powered on or restarted, the baud rate resets to 115200 (regardless of this setting) and stays there until the system is fully booted. (At that time, the chosen baud rate takes effect.) As a result, you won't see any console output during this time if you choose a baud rate other than 115200. To prevent this from happening, use the default setting of 115200.



**Table 5-9 System Commands (Continued)**

Command	Arguments	Description
<b>ECHO</b>	<ON   OFF>	Turns the serial port echo on/off. <b>Note:</b> This setting only applies to commands typed and sent to the unit from the serial port. The ECHO setting has no effect on responses issued by the <i>MediaWall V</i> ; responses are always visible, regardless of the echo status. <b>Example:</b> To disable command echo, type: <code>echo off</code> Default: ON
<b>FTPPort</b>	[21, 1000...65000]	Changes or reports the port number for FTP communication. <b>Example:</b> To set the FTP port to 2500, type: <code>ftpp 2500</code> Default: 21
<b>GUIPort</b>	[1000...65000]	Changes or reports the port number for communication using the <i>MediaWall V</i> Web Interface. Default: 8001
<b>Help</b>	[command]	Without an argument, lists all commands. With an argument, displays detailed information about that command. <b>Example:</b> To display help for the command <a href="#">WINDOWSOURCEANGLE</a> , use the command: <code>h windowsourceangle</code>
<b>HOSTNAME</b>	[name]	Sets the system host name. The name can be up to 23 characters in length. Use the underscore character in the place of a space. <b>Example:</b> To set the <i>MediaWall</i> host name to "Training_Room," use the command: <code>hostname Training_Room</code>
<b>ID</b>	(none)	See <a href="#">SYSTEMINFO</a> .
<b>IPADDRess</b>	[ddd.ddd.ddd.ddd]	Sets the IP address for the <i>MediaWall V 4K/UHD Display Processor</i> . To determine the current IP address, enter the command without an argument. <b>Note:</b> The new IP address setting is applied after you issue the <a href="#">IPUPDate</a> command. <b>Example:</b> To set the IP address to 190.160.35.185, type: <code>ipaddr 190.160.35.185</code> Default: 192.168.1.200
<b>IPAddrType</b>	[STATIC   DYNAMIC]	Set system network IP address type to STATIC or DYNAMIC. <b>Note:</b> The new IP address type setting is applied after you issue the <a href="#">IPUPDate</a> command. Default: STATIC





**Table 5-9 System Commands (Continued)**

Command	Arguments	Description
<b>IPCoMmanDPort</b>	[1000...65000]	<p>Sets or reports the command line interface session port number for Telnet.</p> <p><b>Note:</b> The new IP port setting is applied after you issue the <a href="#">IPUPDate</a> command.</p> <p><b>Example:</b> To set the port to 9000, use the command:</p> <pre>ipcmdp 9000</pre> <p>Default: 8000</p>
<b>IPCoMmanDTimeOUT</b>	[0...65000]	<p>Sets or reports the Telnet session inactivity timeout period, in minutes.</p> <p>Whenever a new Telnet session is requested, the <i>MediaWall V</i> checks for Telnet sessions that have been inactive for longer than this timeout period and closes them.</p> <p>When <b>IPCoMmanDTimeOUT</b> is 0, no timeout is enforced.</p> <p><b>Note:</b> The <i>MediaWall V</i> supports up to 10 Telnet client sessions at a time.</p> <p><b>Example:</b> To set the Telnet session inactivity timeout period to 60 minutes, use the command:</p> <pre>ipcmdtout 60</pre> <p>Default: 10</p>
<b>IPGateWay</b>	[ddd.ddd.ddd.ddd]	<p>Sets the IP gateway address.</p> <p>This setting may need to be changed to suit your network's configuration. To determine the current IP gateway, enter the command without an argument.</p> <p><b>Note:</b> The new IP gateway setting is applied after you issue the <a href="#">IPUPDate</a> command.</p> <p><b>Example:</b> To set the IP gateway to 190.160.35.1, type:</p> <pre>ipgw 190.160.35.1</pre> <p>Default: 192.168.1.1</p>
<b>IPSTATus</b>	(none)	Displays IP network connection information.
<b>IPSubNET</b>	[ddd.ddd.ddd.ddd]	<p>Sets the IP subnet mask.</p> <p>This setting may need to be changed to suit your network's configuration. To determine the current IP subnet setting, enter the command without the subnet mask argument.</p> <p><b>Note:</b> The new IP subnet mask setting is applied after you issue the <a href="#">IPUPDate</a> command.</p> <p><b>Example:</b> To set the IP subnet mask to 255.255.255.240, use the command:</p> <pre>ipsnet 255.255.255.240</pre> <p>Default: 255.255.255.0</p>



**Table 5-9 System Commands (Continued)**

Command	Arguments	Description
<b>IPUPDate</b>	<ADDRess   GateWay   SubNet   Type   ALL>	This command must be executed for IP setting changes to take effect. <b>Example:</b> To update the gateway address only, enter the command: <pre>ipupd gw</pre>
<b>MACADDRess</b>	(none)	Displays the Ethernet MAC address. <b>Note:</b> This is a read-only command.
<b>NTSIP</b>	[IP address1] [IP address2] [IP address3]	Sets the IP address of up to three Network Time Servers. <b>Example:</b> To set the network time server address to 64.90.182.55, enter the command: <pre>ntsip 64.90.182.55</pre>
<b>RestoreFactoryDefaults</b>	(none)	Restores all user settings to their factory default values and restarts the system.
<b>SETTINGSEXPORT</b>	[filename.db]	This command provides the ability to store <i>MediaWall V</i> settings and export them to a computer. This is useful in backing up settings, or providing the ability to configure multiple <i>MediaWall V</i> systems with the same settings. To save settings: <ol style="list-style-type: none"><li>1. Create the file using the <b>SETTINGSEXPORT</b> command.</li><li>2. Log in to the <i>MediaWall V</i> FTP server.</li><li>3. For command-line FTP, type the command <pre>get [filename].db</pre> to move the file from the <i>MediaWall V</i> to your PC. Alternately, use Windows Explorer to drag and drop the file from the <i>MediaWall V</i> to the PC.</li></ol> <b>Example:</b> To export all settings to a file named <b>export.db</b> , type: <pre>settingsexport</pre> <b>Note:</b> The default filename is <b>export.db</b> . If you are logged in as <b>admin</b> , you can specify your own file name using the optional filename argument. <b>Example:</b> To export all settings to a file called "mw5_backup.db," enter the command: <pre>settingsexport mw5_backup.db</pre> See also <a href="#">SETTINGSIMPORT</a> .



**Table 5-9 System Commands (Continued)**

Command	Arguments	Description
<b>SETTINGSIMPORT</b>	<TiMingLIST   EDIdLIST   FontLIST   PRESETS   SYStemSTATE   ALL> [filename.db]	<p>This command provides the ability to restore or set system settings (or clone a new system) to match the configuration of a different <i>MediaWall V 4K/UHD Display Processor</i>.</p> <p><b>SETTINGSIMPORT</b> accepts the database file created using the <b>SETTINGSEXPORT</b> command.</p> <p>To import settings from your PC:</p> <ol style="list-style-type: none"> <li>1. For command-line FTP, use the command <code>put &lt;filename&gt;</code> to place the file into the <i>MediaWall V</i> memory. (&lt;filename&gt; is the name of the file created using the <b>SETTINGSEXPORT</b> command); – OR – Use Windows Explorer to transfer the settings database file. Refer to <a href="#">Using FTP on page 145</a> for more information.</li> <li>2. From the Telnet or serial port, issue the command <code>settingsimport &lt;settings_group   all&gt; [filename.db]</code>. You can omit the filename if you used the default filename (<b>export.db</b>) when exporting your settings with <b>SETTINGSEXPORT</b>.</li> </ol> <p>The <i>MediaWall V</i> will reboot and load the imported settings.</p>
<b>SYStemINFO</b>	(none)	<p>Displays information that uniquely identifies your <i>MediaWall V</i>.</p> <p>This information includes:</p> <ul style="list-style-type: none"> <li>◆ Product name</li> <li>◆ Product identification</li> <li>◆ Firmware version number</li> <li>◆ FPGA version numbers</li> <li>◆ Manufacturing date</li> <li>◆ IP address settings</li> <li>◆ Serial number</li> </ul>
<b>SYStemReSeT</b>	(none)	<p>Restarts the <i>MediaWall V 4K/UHD Display Processor</i>. This has the same effect as rebooting from power-off.</p>



**Table 5-9 System Commands (Continued)**

Command	Arguments	Description
<b>SYSTemTIME</b>	[NTS]   [NTS 30...1440]   [<MANUAL> <YYYY> <MM> <DD> <HH> <MM> <SS>]	<p>Reports the current date and time, sets the internal <i>MediaWall V</i> real-time clock, or sets the NTP server sync interval.</p> <p>There are three ways to set the system clock:</p> <ul style="list-style-type: none"> <li>◆ A one-time sync with a Network Time Server;</li> <li>◆ Ongoing, periodic syncing with a Network Time Server (the sync period ranges from 30 minutes to 24 hours (1440 minutes)); or</li> <li>◆ Setting the date and time manually. <b>If you use this method, you must specify Greenwich Mean Time/Universal Coordinated Time (GMT/UTC).</b></li> </ul> <p><b>Example:</b> To sync the system clock with a network time server, type:</p> <pre>systemtime nts</pre> <p><b>Example:</b> To resync the system clock with a network time server once every four hours, type:</p> <pre>systemtime nts 240</pre> <p>Default: 120</p> <p><b>Example:</b> To set the system time to 2:00 pm, March 18, 2016 (GMT/UTC), enter the command:</p> <pre>systemtime manual 2016 03 18 14 00 00</pre>
<b>TEMPerature</b>	(none)	Reports temperatures from all temperature sensors in the system.
<b>TestPattern</b>	<wall #> [OFF   VRRAMP   VGRAMP   VBRAMP   VWRAMP   HRRAMP   HGRAMP   HBRAMP   HWRAMP   BARS   ALIGN   MOIRE   TBARS]	<p>Turns on the selected test pattern on a wall.</p> <p>Use the <b>OFF</b> argument to turn the current test pattern off.</p> <p><b>Example:</b> To display a color bar test pattern on Wall 1, enter the command:</p> <pre>tp 1 bars</pre> <p>Default: OFF</p>
<b>TiMingDElete</b>	<100...160>	Deletes the specified timing set.
<b>TiMingLIST</b>	[1...160]   [1...159] [2...160]	Lists either a single timing entry or a range of saved timing entries. Without an argument, displays the entire timing list.



**Table 5-9 System Commands (Continued)**

Command	Arguments	Description
<b>TiMingSAVE</b>	<pre>&lt;100 ... 160&gt; &lt; [&lt;INput&gt; &lt;1 ... 36&gt;]   [&lt;OUTput&gt;]   [&lt;MANUAL&gt; &lt;hfp&gt; &lt;hs&gt; &lt;hbp&gt; &lt;hact&gt; &lt;vfp&gt; &lt;vs&gt; &lt;vbp&gt; &lt;vact&gt; &lt;hfreq&gt; &lt;hpol&gt; &lt;vpol&gt; &lt;scan&gt; &lt;name&gt;] &gt;</pre>	<p>Creates a custom timing list entry.</p> <p>Use <b>TiMingSAVE</b> to save one of the following to the timing list:</p> <ul style="list-style-type: none"> <li>◆ Timing parameters from an input;</li> <li>◆ Output timing parameters currently in effect; or</li> <li>◆ Timing parameters that you enter manually.</li> </ul> <p>Refer to <a href="#">Table 5-13</a> for timing parameter descriptions.</p> <p><b>Example:</b> To save Timing List entry 110, with timing parameters currently in use on Input 1, enter the command:</p> <pre>tmsave 110 in 1</pre> <p><b>Example:</b> To save Timing List entry 110, with output timing parameters currently in use, enter the command:</p> <pre>tmsave 110 out</pre> <p><b>Example:</b> To name Timing List entry 110 “Command_1,” with values for all parameters, enter the command:</p> <pre>tmsave 110 manual 64 192 304 1600 1 3 46 1200 75001 1 1 p Command_1</pre>
<b>UpdateFirmWare</b>	(none)	<p>Loads new firmware into the <i>MediaWall V</i>.</p> <p>Refer to <a href="#">Chapter 6</a> for complete instructions for updating firmware.</p>
<b>VERsion</b>	(none)	Returns firmware and hardware version information.



## 5.2.9 Thumbnail Commands

The *MediaWall V* uses **multicasting** to transmit thumbnail images that it acquires from sources to all MCMS control stations and *VIEW* Controller PCs. Control clients use these images to display sources on a “virtual wall.”

Use the thumbnail commands category to view or change settings related to the acquisition, processing, and multicasting of thumbnail images. [Table 5-10](#) lists these commands, their arguments and detailed descriptions.

**Table 5-10 Thumbnail Commands**

Command	Arguments	Description
<b>ThumbNAIL</b>	[ON   OFF]	Starts or stops thumbnail processing. Default: ON
<b>ThumbNAILDestinationIPADDR</b>	[ddd.ddd.ddd.ddd]	Sets or reports the multicast IP address. The <i>MediaWall V</i> streams thumbnail images to this address when <a href="#">ThumbNAIL</a> is ON. Default: 239.1.1.1
<b>ThumbNAILDestinationPORT</b>	[1024 ... 65535]	Sets or reports the multicast TCP port. The <i>MediaWall V</i> streams thumbnail images on this port when <a href="#">ThumbNAIL</a> is ON. Default: 1234
<b>ThumbNAILINPUTLIST</b>	[_1<,>_2<,>_3<,>..._36]	Sets or reports the input channel list used for processing thumbnails. The command takes a list of channel numbers. Each channel number must be preceded with the underscore (_) character. Separate each input channel number with either a space or a comma. <b>Example:</b> To set the input channel list to channels 1, 2, 11, and 12, type: <pre>tnailinputlist _1 _2 _11 _12</pre> – OR – <pre>tnailinputlist _1,_2,_11,_12</pre> To view the current input channel list, type the command with no arguments. <b>Example:</b> <pre>user&gt;tnailinputlist</pre> <pre>["ID: 1"] ["1","2","11","12"]</pre>
<b>ThumbNAILRATE</b>	[Low   Medium   High]	Sets or reports the thumbnail processing rate. Default: Medium



**Table 5-10 Thumbnail Commands (Continued)**

Command	Arguments	Description
Thumb <b>NAILSTATUS</b>	(none)	<p>Returns status information relating to thumbnail processing.</p> <p><b>Example:</b></p> <pre> user&gt;tnailstatus sw version = 1.0.2.13 Thumbnail state = ON IP = 239.1.1.1 port = 1234 ttl = 6 rate = High src name = input list ID = 1 </pre>
Thumb <b>NAILTTL</b>	[1...255]	<p>Set the multicast streaming Time-to-Live (TTL). TTL is a threshold representing the number of networks a multicast IP datagram can traverse before being dropped. The TTL prevents datagrams from being looped endlessly between two networks due to routing errors.</p> <p>Valid values are from 1 to 255, inclusive. The default setting is <b>6</b>, which is appropriate for most situations.</p>



### 5.2.10 Wall Commands

Wall commands provide control over wall configuration and setup. [Table 5-11](#) describes these commands.

**Table 5-11 Wall Commands**

Command	Arguments	Description
WALLLAYOUT	(none)	Reports wall number, size, and output origin (top-left cube) for each configured wall.
	<b>Example:</b> <pre> user&gt;walllayout Layout: 1 Wall   Row   Col   origin   4Kp30   4Kp60   MST -----+-----+-----+-----+-----+-----+----- 1     4     6     1     n       n       y </pre>	
WALLLAYOUTDElete	<custom layout #: 81...100>	Deletes a custom wall layout imported using the <a href="#">WALLLAYOUTIMPORT</a> command. <b>Example:</b> To delete custom wall layout 81, type: <pre>walllayoutdel 81</pre>





**Table 5-11 Wall Commands (Continued)**

Command	Arguments	Description
<b>WALLLAYOUTIMPORT</b>	(none)	Imports one or more wall layouts from an uploaded, custom wall layout file into the layout list.
	<p>To import a custom wall layout:</p> <ol style="list-style-type: none"> <li><a href="#">Contact RGB Spectrum Technical Support</a> to describe your requirements and request a custom wall layout file.</li> <li>When you receive the file, save it to the desktop or other convenient location on your PC. <b>Do not re-name the file.</b></li> <li>For command-line FTP, use the command <code>put wall_layoutc.txt</code> to place the file into the <i>MediaWall V</i> memory;</li> </ol> <p>– OR –</p> <p>Use a graphical FTP client to transfer the wall layout file. Refer to <a href="#">Using FTP on page 145</a> for detailed instructions.</p> <ol style="list-style-type: none"> <li>From the Telnet or serial port, issue the command <code>walllayoutimport</code></li> <li>To confirm that the layout(s) were imported successfully, use the <a href="#">WALLLAY-OUTLIST</a> command. (Custom wall layouts occupy list entries 81 through 100.)</li> </ol> <p><b>Example:</b> After importing custom layouts into slots 81, 82, and 83:</p> <pre>admin&gt; walllayoutlist NUM   # WALLS   WALL 1   WALL 2   WALL 3   4Kp30   4Kp60   MST -----+-----+-----+-----+-----+-----+-----+-----   1   1         1x 6 @ 1   -         -         n       n       1   2   1         1x 3 @ 1   -         -         y       n         3   1         1x 1 @ 1   -         -         y       y       . . .  81   1         2x11 @ 1   -         -         n       n        82   2         1x 8 @ 1   1x 8 @13   -         n       n        83   3         1x 8 @ 1   1x 6 @13   1x 4 @19   n       n      </pre> <p>After importing a custom wall layout, use the <a href="#">WALLLAYOUTLOAD</a> command to load it.</p>	



**Table 5-11 Wall Commands (Continued)**

Command	Arguments	Description
WALLLAYOUTLIST	(none)	Lists all pre-defined and custom wall layouts. Each layout list entry shows the following information: <ul style="list-style-type: none"> <li>◆ The number of walls defined in that layout;</li> <li>◆ The geometry and anchor output number (the one connected to the top-left display, following the @ symbol) for each wall in the layout; and</li> <li>◆ 4K/UHD output timings supported by the layout.</li> </ul>
	<p><b>Example:</b></p> <pre>admin&gt; walllayoutlist NUM   # WALLS   WALL 1   WALL 2   WALL 3   4Kp30   4Kp60   MST -----+-----+-----+-----+-----+-----+-----+-----  1   1   1x 6 @ 1   -   -   n   n   1  2   1   1x 3 @ 1   -   -   y   n    3   1   1x 1 @ 1   -   -   y   y    4   1   1x 2 @ 1   -   -   y   n    5   1   1x 4 @ 1   -   -   n   n   1  6   1   1x 5 @ 1   -   -   n   n   1  7   1   2x 1 @ 1   -   -   n   n    8   1   2x 2 @ 1   -   -   n   n    9   1   2x 3 @ 1   -   -   n   n   10   2   1x 3 @ 1   1x 3 @ 4   -   n   n   1 2 11   2   1x 4 @ 1   1x 2 @ 5   -   n   n   1 2 12   3   1x 4 @ 1   1x 1 @ 5   1x 1 @ 6   n   n   1 2 3 13   3   1x 2 @ 1   1x 2 @ 3   1x 2 @ 5   n   n   1 2 3</pre>	
WALLLAYOUTLOAD	<layout #: 1...100>	Reboots the <i>MediaWall V</i> and loads a saved wall layout from the layout list.
WALLMULLIONS	<wall #> [<Width: 0...400> <Height: 0...400>]	Use this command to compensate for mullions. The horizontal and vertical spacing between displays is expressed in terms of pixels and lines, respectively. <p><b>Example:</b> To set the mullion width to 24 pixels and mullion height to 15 lines on Wall 1, type:</p> <pre>wallmullion 1 24 15</pre> <p>Default: 0 0</p>
WALLOVERLAP	<wall #> [<H-overlap: 0...1920> <V-overlap: 0...1920>]	Sets or reports the image overlap (in pixels) of adjacent outputs. <p><b>Example:</b> To set the horizontal overlap to 50 on Wall 1, type:</p> <pre>wallov 1 50 0</pre> <p>Default: 0 0</p> <p><b>Note:</b> Output overlap is supported only on walls six (6) or fewer columns wide (three (3) or fewer columns wide with 4K/UHD output timing).</p>



## 5.2.11 Window Commands

Window commands cover positioning and visibility functions, and enable you to control the display configuration, zoom and pan operations. [Table 5-12](#) describes these commands.

**Table 5-12 Window Commands**

Command	Arguments	Description
<b>WINdowALLOcate</b>	<wall #> [window #] [global   local1   local2   local3   local4   local5   local6   local7   local8] [hd   uhd   grp]	<p>Creates a new window on a wall, or reports the current window allocation for a wall.</p> <p>A window can be either <code>global</code> (that is, it can occupy any area of the wall), or <code>local [X]</code> (confined to locale [X] of the wall's displays; refer to <a href="#">What is a "Locale"?</a> on page 65).</p> <p>Specify the window type as <code>hd</code>, <code>uhd</code> (4K) or a group (<code>grp</code>) of outputs from a multi-headed graphics card.</p> <p>To see a list of windows allocated to a wall, use the command with the &lt;wall #&gt; argument only; for example, <code>winalloc 1</code>.</p> <p><b>Example:</b> To create a window of type <code>uhd</code> on Wall 1, numbered Window 1, that can be positioned anywhere on the wall, use the command:</p> <pre>winalloc 1 1 global uhd</pre> <p><b>Example:</b> To create a window of type <code>hd</code> on Wall 1, numbered Window 3, that is confined to locale 2, use the command:</p> <pre>winalloc 1 3 local2 hd</pre> <p>See also <a href="#">WINDOWFREE</a>.</p>
<b>WINdowBorderCOLOR</b>	<wall #> <window #   ALL> [<red> <green> <blue>]   [WHITE   YELLOW   CYAN   GREEN   MAGENTA   RED   BLUE   BLACK]	<p>Sets the color of the border around the specified window.</p> <p>You can set the color using red, green, and blue values (0...255), or a pre-defined color.</p> <p><b>Example:</b> To set the border color for all windows on Wall 1 to blue, enter the command:</p> <pre>winbcolor 1 all blue</pre> <p><b>Example:</b> To set the border color for Wall 1, Window 4 to cyan, enter the command:</p> <pre>winbcolor 1 4 cyan</pre>
<b>WINdowBorderWIDTH</b>	<wall #> <window #   ALL> [0...100]	<p>Sets the border width (in pixels) around the specified window.</p> <p>To remove a border, set the width to zero.</p> <p><b>Example:</b> To set the border width to 6 pixels for all windows on Wall 1, enter the command:</p> <pre>winbwidth 1 all 6</pre> <p>Default: 0</p>



**Table 5-12 Window Commands (Continued)**

Command	Arguments	Description
<b>WIN</b> dow <b>DEST</b> ination <b>RECTa</b> <b>ngle</b>	<wall #> <window #> <x> <y> <width> <height>	<p>Sets the position and size of a window's destination rectangle.</p> <ul style="list-style-type: none"> <li>◆ The &lt;x&gt; and &lt;y&gt; arguments represent the wall coordinates of the rectangle's top left corner, but hardware limitations may cause the actual placement to differ slightly from that specified. (When you read <b>WINDESTRECT</b> for any window, the numbers given accurately reflect the hardware state.)</li> <li>◆ The &lt;width&gt; and &lt;height&gt; arguments represent the pixel width and line height of the destination rectangle.</li> </ul> <p><b>Note:</b> The actual, usable ranges will depend on your wall geometry and the resolution and orientation of each display.</p> <p>You can position and size the rectangle so that part of it is off-screen. <b>WINDESTRECT</b> is limited to the output resolution of the wall.</p> <p><b>Example:</b> On a wall of 1920 × 1080 displays, to set Wall 1, Window 4 to full screen on Output 1, enter the command:</p> <pre>windestrect 1 4 0 0 1919 1079</pre> <p><b>Example:</b> To set the size of Wall 1, Window 6 to 100 pixels × 100 lines and position its upper-left corner at column 300, line 400 of the wall, enter the command:</p> <pre>windestrect 1 6 300 400 100 100</pre>
<b>WIN</b> dow <b>DEST</b> ination <b>RECTa</b> <b>ngleREL</b> ative	<wall #> <window #> <x: -1.00...24.00> <y: -1.00...8.00> <width: 0.0...24.0> <height: 0.0...8.0>	<p>Sets the destination rectangle size and position, expressed as fractions or multiples of the output resolution.</p> <p>Note that the minimum and maximum values for x and y place the window outside the wall boundaries. A value of 0 to 0.99 places the window origin in row or column 1, 1.00 to 1.99 places it in row or column 2, and so on.</p> <p><b>Example:</b> If the output timing is 1920 × 1080, this command places Wall 1, Window 7 at 0, 0 (row 1, column 1) and sets the size to 3840 × 2160:</p> <pre>windestrectrel 1 7 0 0 2 2</pre> <p><b>Example:</b> If the output timing is 3840 × 2160, this command places Wall 1, Window 1 at 960, 540 (in row 1, column 1) and sets the size to 1920 × 1080:</p> <pre>windestrectrel 1 1 0.25 0.25 0.5 0.5</pre>
<b>WIN</b> dow <b>EN</b> able	<wall #> <window #   ALL> [ON   OFF]	<p>Turns the specified window on or off.</p> <p>Use the argument <b>ALL</b> to turn all windows on or off simultaneously.</p> <p><b>Example:</b> To turn all windows off on Wall 1, type:</p> <pre>winen 1 all off</pre> <p>Default: ALL ON</p>



**Table 5-12 Window Commands (Continued)**

Command	Arguments	Description
<b>WINdowFRaMeADJ</b> ust	<wall #> <window #> [<xoffset: -1024...1024> <yoffset: -1024...1024> <widthoffset: -1024...1024> <heightoffset: 0...1024>]	<p>Provides for precise alignment of a window source rectangle with its destination rectangle.</p> <p>You can adjust the source rectangle position, width, and height in one-pixel increments.</p> <p><b>Note:</b> <b>WINdowFRaMeADJ</b>ust is currently supported for 2K/HD and 4K/UHD @30 Hz source windows only. With 4K/UHD sources, the <b>xoffset</b> argument has no effect but must be included.</p> <p><b>WINdowFRaMeADJ</b>ust is useful for precisely aligning output signals from a multi-headed graphics card in a PC.</p> <p>All arguments are required (unless you are querying the <i>MediaWall V</i> for the current setting, in which case only the wall number and window number are required). Use 0 for parameters that you do not want to change.</p> <p><b>Example:</b> To shift the Wall 1, Window 3 source rectangle 2 pixels to the right and 1 pixel down (leaving the width and height unchanged), use the command:</p> <pre>winfrmadj 1 3 2 -1 0 0</pre> <p><b>Example:</b> To decrease the Wall 1, Window 3 source rectangle width by 2 pixels and increase the height by 4 pixels (without changing the position), use the command:</p> <pre>winfrmadj 1 3 0 0 -2 4</pre>
<b>WINdowFREE</b>	<wall #> <window #>	<p>Un-allocates a window resource on a wall.</p> <p>See also <a href="#">WINdowALLOCa</a>te.</p>
<b>WINdowFullScreen</b>	<wall #> <window #> [output #]	<p>Sizes the selected window to fill a single wall output or an entire wall.</p> <p><b>Example:</b> To fill Wall 1, Output 2 with Window 5, type:</p> <pre>winfs 1 5 2</pre> <p><b>Example:</b> To fill the whole of Wall 1 with Window 3, type:</p> <pre>winfs 1 3</pre>
<b>WINdowPAN</b>	<wall #> <window #> <i   j   m   l> <repetition>	<p>Activates the pan function for the selected window. Only a zoomed input can be panned. Controls are listed below:</p> <ul style="list-style-type: none"> <li><b>i</b> = pan up</li> <li><b>m</b> = pan down</li> <li><b>j</b> = pan left (2K/HD source windows only)</li> <li><b>l</b> = pan right (2K/HD source windows only)</li> </ul> <p><b>Example:</b> To pan five increments to the left in Wall 1, Window 6, enter the command:</p> <pre>winpan 1 6 j 5</pre> <p>Use the <a href="#">WINdowSETSTEP</a> command to set the increment size (number of pixels and lines).</p>



**Table 5-12 Window Commands (Continued)**

Command	Arguments	Description
<b>WINdowPOSition</b>	<wall #> <window #> <i   j   m   l> <repetition>	Moves the specified window. Specify the direction of the move as follows: i = up m = down j = left l = right  The number of increments (1...100) is set by the <b>repetition</b> argument. <b>Example:</b> To move Wall 1, Window 2 down by 10 increments, enter the command: <pre>winpos 1 2 m 10</pre> Use the <b>WINdowSETSTEP</b> command to set the increment size (number of pixels and lines).
<b>WINdowPRIorityList</b>	<wall #> [window #]	Reports the current priority of one or all windows on a wall. <b>Example:</b> To see the priority of Wall 1, Window 6, type: <pre>winpril 1 6</pre> <b>Example:</b> To see the priority of all windows on Wall 1, type: <pre>winpril 1</pre>
<b>WINdowPRIoritySEQ</b>	<wall #> <starting_priority> <window #> <window #> <window #>...<window #>	Given a starting priority, apply that priority sequence in the given list of windows. <b>Example:</b> To set the priority of Wall 1, Windows 3, 5, 7, and 9 to priority levels 2, 3, 4, and 5 respectively, type: <pre>winpriseq 1 2 3 5 7 9</pre>
<b>WINdowPRIorityTOP</b>	<wall #> <window #> <window #> <window #>... <window #>	Starting from priority 1, apply that priority sequence in the given list of windows. <b>Example:</b> To set the priority of Wall 1, Windows 3, 5, 7, and 9 to priority levels 1, 2, 3, and 4 respectively, type: <pre>winpritop 1 3 5 7 9</pre>
<b>WINdowSETSTEP</b>	<x-rate> <y-rate>	Sets the horizontal and vertical increment sizes for the <b>WINdowPAN</b> , <b>WINdowPOSition</b> , <b>WINdowSIZE</b> , and <b>WINdowZoom</b> commands. Valid values are from 1 to 50 inclusive. <b>Example:</b> To set the horizontal increment to 10 pixels and the vertical increment to 6 lines, use the command: <pre>winsetstep 10 6</pre> Default: x = 2, y = 2



**Table 5-12 Window Commands (Continued)**

Command	Arguments	Description
<b>WINdowSIZE</b>	<wall #> <window #> <s   l> <repetition>	<p>Adjusts the height of the specified destination window.</p> <p>The width is changed by an amount calculated automatically to maintain the aspect ratio of the window. For example, when a window with an aspect ratio of 4:3 changes by 6 lines, the width changes by 8 pixels.</p> <p><b>s</b> = make the window smaller <b>l</b> = make the window larger</p> <p>The amount of change in size is set by the variable <b>repetition</b> (1...100).</p> <p><b>Example:</b> To reduce the size of Wall 1, Window 3 by 5 increments, use the command:</p> <pre>winsize 1 3 s 5</pre> <p>Use the <b>WINdowSETSTEP</b> command to set the increment size (&lt;y-rate&gt; = number of lines).</p>
<b>WINdowSouRCe</b>	<wall #> <window #   ALL> [input #]	<p>Sets or reports the active source (input number) for one or all windows.</p> <p><b>Example:</b> To set the source of Wall 1, Window 3 to Input 7, use the command:</p> <pre>winsrc 1 3 7</pre> <p><b>Example:</b> To display the current source for all windows on Wall 1, enter the command:</p> <pre>winsrc 1 all</pre>
<b>WINdowSouRCeRECTangle</b>	<wall #> <window #> [<x: 0...2048> <y: 0...1440> <width: 2...4096> <height: 2...2160>]	<p>Defines or reports the portion of a window's source input to be mapped to an output window (destination rectangle).</p> <p>By default, <b>WINSRCRECT</b> is set to show the entire image.</p> <p>The <b>&lt;x&gt;</b> and <b>&lt;y&gt;</b> coordinates represent the coordinate screen starting point from which to draw the supplied values of <b>&lt;width&gt;</b> and <b>&lt;height&gt;</b>.</p> <p><b>Note:</b> Actual ranges depend on the resolution of the input window.</p> <p><b>Example:</b> To zoom in on the upper-left quadrant of Wall 1, Window 5 (whose source image is 800 × 600), <b>WINSRCRECT</b> values are:</p> <pre>winsrcrect 1 5 0 0 400 300</pre> <p><b>Example:</b> To display only the bottom right quadrant, <b>WINSRCRECT</b> values are:</p> <pre>winsrcrect 1 5 400 300 400 300</pre> <p><b>Example:</b> The full, default source rectangle for this 800 × 600 input is:</p> <pre>winsrcrect 1 5 0 0 800 600</pre> <p><b>WINSRCRECT</b> resets to the default value whenever the signal is acquired or reacquired. That is, if you remove or replace the input signal, <b>WINSRCRECT</b> resets to the default values for the newly-acquired signal.</p>



**Table 5-12 Window Commands (Continued)**

Command	Arguments	Description
<b>W</b> INdow <b>S</b> ouR <b>C</b> e <b>R</b> E <b>C</b> Tangle <b>R</b> <b>E</b> Lative	<wall #> <window #> <x: 0.0...1.0> <y: 0.0...1.0> <width: 0.0...1.0> <height: 0.0...1.0>	<p>Sets the source rectangle for the selected input relative to the full input window size.</p> <p>Coordinates are expressed in fractions relative to the full input window size. For example, use x = 1.0, y = 1.0 to set the window source rectangle to the native size of the input window.</p> <p><b>Example:</b> To set the source rectangle for Wall 1, Window 5 to the upper right quarter of the input image, enter the command:</p> <pre>winsrcrectrel 1 5 .5 0 .5 .5</pre> <p><b>WINSRCRECTREL</b> resets to the default value whenever the signal is acquired or reacquired. That is, if you remove or replace the input signal, <b>WINSRCRECTREL</b> resets to the default values for the newly-acquired signal.</p> <p>Default: x = 0.0, y = 0.0, w = 1.0, h = 1.0</p>
<b>W</b> INdow <b>S</b> ource <b>S</b> TATus	<wall #> <window #>	<p>Reports the signal status (present or not present) for a window. Also displays timing information if a signal is present.</p> <p><b>Example:</b> To display timing parameters for the input associated with Wall 1, Window 3, type:</p> <pre>winsstat 1 3</pre>





**Table 5-12 Window Commands (Continued)**

Command	Arguments	Description
<b>WINdowTEMPlateFILE</b>	[DEFAULT   TEMP1   TEMP2   TEMP3]	<p>Imports a custom window template file.</p> <p>For each wall layout, the <i>MediaWall V</i> Web Interface presents numerous window templates representing a variety of window arrangements. If none of the available, standard templates suits your needs, you can import and load custom window template files.</p> <p>To import and load a custom window template file:</p> <ol style="list-style-type: none"> <li>1. Create your custom template file. For guidance with this step, <a href="#">contact RGB Spectrum Technical Support</a>.</li> <li>2. Name the file <code>temp1.dat</code>, <code>temp2.dat</code>, or <code>temp3.dat</code>. (Use all lower-case letters.)</li> <li>3. Open an FTP connection to the <i>MediaWall V</i>.</li> <li>4. Change to the <code>/myssd</code> directory.</li> <li>5. For command-line FTP, use the command <code>put &lt;template_file_name&gt;</code> to transfer the file to the <i>MediaWall V</i>;</li> </ol> <p>– OR –</p> <p>Use Windows Explorer to transfer the file. Refer to <a href="#">Using FTP on page 145</a> for more information.</p> <ol style="list-style-type: none"> <li>6. From a Telnet or serial port command window, issue the command <pre>wintempfile [temp1   temp2   temp3]</pre> <p><b>Note:</b> Omit the <code>.dat</code> extension.</p> </li> <li>7. Reboot the <i>MediaWall V</i> using the <a href="#">SYStemReSeT</a> command.</li> </ol> <p>Assuming the new template file contains templates that match the current wall layout, those templates can now be previewed and loaded from the <b>Windows</b> tab on the <i>MediaWall V</i> Web Interface.</p> <p>To allow access to the default window templates using the <i>MediaWall V</i> Web Interface, issue the command</p> <pre>wintempfile default</pre>
<b>WINdowUNZOOM</b>	<wall #> <window #>	Resets the zoom to 100% for the specified window.



**Table 5-12 Window Commands (Continued)**

Command	Arguments	Description
<b>WINdowZoom</b>	<wall #> <window #> <i   o> <repetition>	<p>Adjusts the zoom level of the specified window.</p> <p><b>WINdowZoom</b> affects the <a href="#">WINdowSouRCeRECTangle</a> value for the input.</p> <p><b>Note:</b> Zoom is currently supported for 2K/HD and 4K/UHD @30 Hz source windows only.</p> <p>    <b>i</b> = zoom in by the amount defined by repetition variable.</p> <p>    <b>o</b> = zoom out</p> <p>The <b>repetition</b> argument (1...100) specifies the number of increments by which to zoom in or out. Use the <a href="#">WINdowSETSTEP</a> command to set the increment size (&lt;y-rate&gt; = number of lines).</p> <p><b>Example:</b> To zoom out Wall 1, Window 3 by 5 increments, use the command:</p> <pre style="margin-left: 40px;">winzm 1 3 o 5</pre> <p><b>WINdowZoom</b> resets to an unzoomed state whenever the signal is acquired or reacquired. That is, if you remove or replace the input signal, <b>WINdowZoom</b> resets to the default values for the new signal.</p>



### 5.3 Timing Parameters

If, for example, you type the command `winsstat 1 1`, the *MediaWall V* responds with the timing parameters for the source feeding Wall 1, Window 1:

```
user> winsstat 1 1

SOURCE: 1
SIGNAL_PRESENT: Yes

HACT   VACT   (VFREQ)  SCAN   PIXFREQ
1920   1080   (60.00)  p      148492188

HFP   HS   HBP   (HTOT)  VFP   VS   VBP   (VTOT)  (HFREQ)  HPOL  VPOL
88    44   148   (2200)  4.0   5.0  36.0  (1125)  (67496 )  +    +
```

[Table 5-13](#) describes these timing parameters which, in conjunction with the [TiMingSAVE](#) command, you can use to create and modify timing list entries.

**Table 5-13** Definitions and Ranges for Timing Parameters

Parameter		Description	Valid Range	
Short Name	Full Name		Min.	Max.
HACT	horizontal active	The active picture interval (non-blanked portion of the image).	16	4096
VACT	vertical active	The number of active lines of picture.	12	4096
VFREQ	vertical frequency	The vertical frequency (in <b>Hz</b> ).	24.00	119.99
SCAN	scan method	The scan method (always "p" for progressive).	–	–
PIXFREQ	pixel clock frequency	The speed at which pixels are transmitted.	25175200	594000000
HFP	horizontal front porch	The beginning of the horizontal blanking interval.	0	3000
HS	horizontal sync	The width of the horizontal sync pulse.	16	640
HBP	horizontal back porch	The end of the horizontal blanking interval.	0	640
HTOT	total horizontal pixel count	This parameter is calculated by the <i>MediaWall V 4K/UHD Display Processor</i> , as follows:  <b>HTOT = HFP + HS + HBP + HACT</b>	–	–
VFP	vertical front porch	The part of vertical blanking prior to the vertical sync.	0.0	512.0
VS	vertical sync	The width of the vertical sync pulse.	1.0	32.0
VBP	vertical back porch	The part of the vertical blanking signal following the vertical sync interval.	0.0	512.0
VTOT	total vertical line count	This parameter is calculated by the <i>MediaWall V 4K/UHD Display Processor</i> , as follows:  <b>VTOT = VFP + VS + VBP + VACT</b>	–	–
HFREQ	horizontal frequency	The horizontal frequency (in <b>Hz</b> ).	12500	135000



**Table 5-13** Definitions and Ranges for Timing Parameters (Continued)

Parameter		Description	Valid Range	
Short Name	Full Name		Min.	Max.
HPOL	horizontal sync polarity	The value + represents positive sync polarity and the value - represents negative sync polarity. Typically the horizontal and vertical sync have the same polarity. Note that 3-wire sync is always negative polarity.	-	+
VPOL	vertical sync polarity			

## 5.4 Factory Timing List

[Table 5-14](#) lists all of the *MediaWall V 4K/UHD Display Processor's* preset timings that can be used for **Output** timing settings. You can also create custom timing table entries. The *MediaWall V 4K/UHD Display Processor* uses these settings to match its output to that of your display device. ([Table 5-13](#) provides detailed descriptions of the timing parameters listed here.)

Note the following:

- Entries 1 through 78 are factory-defined timings.
- Entries 79 through 99 are reserved for future factory-defined timings.
- Entries 100 through 160 are for user-defined timings.
- Advanced users can modify timing settings and then store them using the [TiMingSAVE](#) command.
- Custom settings can also be named using the [TiMingSAVE](#) command.

**Table 5-14** Factory Timing List

NUM	NAME	HACT	VACT	(VFREQ)	SCAN	PIXFREQ
1	VESA_640x350_85Hz	640	350	(85.08)	p	31500352
2	VESA_640x400_85Hz	640	400	(85.08)	p	31500352
3	VESA_720x400_85Hz	720	400	(85.04)	p	35499672
4	VESA_640x480_60Hz	640	480	(59.94)	p	25175200
5	VESA_640x480_72Hz	640	480	(72.81)	p	31500352
6	VESA_640x480_75Hz	640	480	(75)	p	31500000
7	VESA_640x480_85Hz	640	480	(85.01)	p	35999808
8	VESA_800x600_56Hz	800	600	(56.25)	p	35999744
9	VESA_800x600_60Hz	800	600	(60.32)	p	40000224
10	VESA_800x600_72Hz	800	600	(72.19)	p	50000080
11	VESA_800x600_75Hz	800	600	(75)	p	49500000
12	VESA_800x600_85Hz	800	600	(85.06)	p	56250352
13	VESA_800x600_120RB	800	600	(119.97)	p	73249920



**Table 5-14 Factory Timing List (Continued)**

NUM	NAME	HACT	VACT	(VFREQ)	SCAN	PIXFREQ
14	VESA_848x480_60Hz	848	480	(60)	p	33749760
15	VESA_1024x768_60Hz	1024	768	(60)	p	64999872
16	VESA_1024x768_70Hz	1024	768	(70.07)	p	75000128
17	VESA_1024x768_75Hz	1024	768	(75.03)	p	78750176
18	VESA_1024x768_85Hz	1024	768	(85)	p	94499552
19	VESA_1024x768_120RB	1024	768	(119.99)	p	115500384
20	VESA_1152x864_75Hz	1152	864	(75)	p	108000000
21	VESA_1280x768_60RB	1280	768	(59.99)	p	68250240
22	VESA_1280x768_60Hz	1280	768	(59.87)	p	79499264
23	VESA_1280x768_75Hz	1280	768	(74.89)	p	102250144
24	VESA_1280x768_85Hz	1280	768	(84.84)	p	117499696
25	VESA_1280x768_120RB	1280	768	(119.80)	p	140250240
26	VESA_1280x800_60HRB	1280	800	(59.91)	p	71000640
27	VESA_1280x800_60Hz	1280	800	(59.81)	p	83499360
28	VESA_1280x800_75Hz	1280	800	(74.93)	p	106500320
29	VESA_1280x800_85Hz	1280	800	(84.88)	p	122500448
30	VESA_1280x800_120RB	1280	800	(119.91)	p	146250720
31	VESA_1280x960_60Hz	1280	960	(60.00)	p	108000000
32	VESA_1280x960_85Hz	1280	960	(85.00)	p	148500864
33	VESA_1280x960_100RB	1280	960	(99.99)	p	144999360
34	VESA_1280x1024_60Hz	1280	1024	(60.02)	p	107999928
35	VESA_1280x1024_75Hz	1280	1024	(75.02)	p	134999488
36	VESA_1280x1024_85Hz	1280	1024	(85.02)	p	157500288
37	VESA_1360x768_60Hz	1360	768	(60.02)	p	85499904
38	VESA_1360x768_120RB	1360	768	(119.97)	p	148250160
39	VESA_1366x768_60Hz	1366	768	(59.79)	p	85499904
40	VESA_1400x1050_60RB	1400	1050	(59.95)	p	101000640
41	VESA_1400x1050_60Hz	1400	1050	(59.98)	p	121749024
42	VESA_1400x1050_75Hz	1400	1050	(74.87)	p	155999088
43	VESA_1440x900_60RB	1440	900	(59.90)	p	88750400
44	VESA_1440x900_60Hz	1440	900	(59.89)	p	106500240
45	VESA_1440x900_75Hz	1440	900	(74.98)	p	136749360
46	VESA_1440x900_85Hz	1440	900	(84.84)	p	156999360
47	VESA_1600x1200_60Hz	1600	1200	(60.00)	p	162000000
48	VESA_1680x1050_60RB	1680	1050	(59.88)	p	119000160
49	VESA_1680x1050_60Hz	1680	1050	(59.95)	p	146249600
50	VESA_1920x1200_60RB	1920	1200	(59.95)	p	153999040
51	1280x720,24Hz	1280	720	(24.00)	p	74250000



**Table 5-14 Factory Timing List (Continued)**

NUM	NAME	HACT	VACT	(VFREQ)	SCAN	PIXFREQ
52	1280x720,30Hz	1280	720	(30.00)	p	74250000
53	1280x720,50Hz	1280	720	(50.00)	p	74250000
54	1280x720,60Hz	1280	720	(60.00)	p	74250000
55	1920x1080,24p	1920	1080	(24.00)	p	74250000
56	1920x1080,30p	1920	1080	(30.00)	p	74250000
57	1920x1080,60p	1920	1080	(60.00)	p	148500000
58	SonyDCI_2048x1080,60	2048	1080	(60.00)	p	148500000
59	2048x1152,60p	2048	1152	(59.91)	p	156750336
60	SonyDCI_2048x1080,24	2048	1080	(24.00)	p	74250000
61	720x480,60p	720	480	(60.00)	p	27027000
62	VESA_1920x1440_60	1920	1440	(60.00)	p	234000000
63	VESA_1920x1440_75	1920	1440	(75.00)	p	297000000
64	VESA_2048x1536_60	2048	1536	(59.95)	p	267248800
65	VESA_2560x1440_60RB	2560	1440	(59.95)	p	241500640
66	VESA_2560x1600_60RB	2560	1600	(59.97)	p	268499360
67	1920x2160,60Hz	1920	2160	(59.99)	p	277249440
68	1920x2160,50Hz	1920	2160	(49.97)	p	293499360
69	3840x2160_30RB	3840	2160	(29.98)	p	262752000
70	3840x2160,24Hz	3840	2160	(24.00)	p	297000000
71	3840x2160,25Hz	3840	2160	(25.00)	p	297000000
72	3840x2160,30Hz	3840	2160	(30.00)	p	297000000
73	4096x2160,24Hz	4096	2160	(24.00)	p	297000000
74	4096x2160,25Hz	4096	2160	(25.00)	p	297000000
75	4096x2160,30Hz	4096	2160	(30.00)	p	297000000
76	3840x2160,60Hz	3840	2160	(60.00)	p	594000000
77	3840x2160_60RB_Dell	3840	2160	(60.00)	p	533248000
78	3840x2160_60RB_CVT	3840	2160	(60.00)	p	533248000

# CHAPTER 6

# PARAMETER STORAGE AND FIRMWARE UPDATE

This chapter describes how to save and restore *MediaWall V 4K/UHD Display Processor* system parameters and update the firmware. It is divided into the following sections:

- [Parameter Storage](#)
- [Firmware Updates](#)

## 6.1 Parameter Storage

This section describes the categories of settings that are stored in *MediaWall V 4K/UHD Display Processor* and how these settings are stored and retrieved.

### 6.1.1 Factory Defaults

The *MediaWall V* is shipped from the factory loaded with settings (parameters) known as **Factory Defaults**. As you use the system over time, these default settings are replaced with your new settings. Your new settings are automatically stored by the *MediaWall V 4K/UHD Display Processor* in non-volatile memory so the next time you turn on the unit it will start operating with the same settings you had when you last used the unit.

To restore the factory-default settings, use the [RestoreFactoryDefaults](#) command. (Your terminal session must be in administrator mode in order to use this command.)

### 6.1.2 Settings Export/Import

In addition to storing settings internally in non-volatile memory, the *MediaWall V 4K/UHD Display Processor* provides the ability to copy settings to an external device such as a PC. The settings are stored in a database file that can be transferred to or from the external device.

#### Note

Recalling previously stored parameters will change the operation of your unit. Because there is no undo feature, we recommend that you have a backup copy of your preferred settings.



### 6.1.3 System State Values

There are several categories of system values (parameters) that are saved:

#### IMAGE CONTROLS

The following parameters are stored for each input:

- ◆ Input source
- ◆ Color space
- ◆ Brightness, contrast, hue, saturation and sharpness
- ◆ Window labels

#### OUTPUT SETTINGS

The following parameters are stored for the *MediaWall V 4K/UHD Display Processor* outputs:

- ◆ Output timing reference
- ◆ Background color values

#### OUTPUT TIMING VALUES

- ◆ Timing preset number
- ◆ Timing preset name
- ◆ Horizontal front porch, sync width, back porch, and active area (in pixels)
- ◆ Vertical front porch, sync height, back porch, and active area (in lines)
- ◆ Horizontal and vertical frequencies
- ◆ Horizontal and vertical sync polarities
- ◆ Output reference mode
- ◆ Aspect ratio

#### WINDOW SETTINGS

The following parameters are stored for each window:

- ◆ Enable
- ◆ Source rectangle dimensions (X, Y, width, height)
- ◆ Destination rectangle dimensions (X, Y, width, height)
- ◆ Window/source (input) label enable, position, justification, label color, and label background color
- ◆ Priority
- ◆ Border width, border color





## WALL SETTINGS

- ◆ Geometry (rows × columns)
- ◆ Mullion width and height, or horizontal and vertical overlap settings
- ◆ Output timing
- ◆ Wall clock settings
- ◆ Wall label settings

## CONFIGURATION VALUES

- ◆ X and Y repeat rates used in window position and pan
- ◆ Scale step used in window size and zoom

## SERIAL PORT SETTINGS

- ◆ Baud rate
- ◆ Echo

### 6.1.4 Presets

The *MediaWall V 4K/UHD Display Processor* is capable of storing up to 60 presets containing the following parameters:

- Preset name
- Window states (enabled or disabled)
- Window types (2K/HD or 4K/UHD)
- Window locales (i.e. which rows each window can occupy)
- Window source selections
- Window destination rectangle dimensions and positions
- Window source rectangle dimensions and positions
- Window and input source label enable, position, justification, label text, font, size, color, and background color
- Window border widths and colors
- Window priorities
- Wall clock enable, position, size, date/time format, color, and time zone
- Wall label enable, position, justification, label text, font, size, color, and background color
- Wall background color
- Input source image properties (brightness, contrast, saturation, hue, and sharpness)

**Notes**

1. Presets do not contain any information about unallocated windows. Refer to the [WINDOWFREE](#) and [WINDOWALLOCate](#) command descriptions in [Chapter 5](#).
2. Presets created using the [PresetSAVE](#) command do not contain source-to-auxiliary (or switched) output routing information. To store this information in a preset, use the *MediaWall V* Web Interface. Refer to the *MediaWall V 4K/UHD Display Processor User's Guide* for detailed instructions.

## 6.2 Firmware Updates

From time to time, RGB Spectrum updates product firmware to add new features or improve product performance.

To determine your current firmware version numbers, use the *MediaWall V 4K/UHD Display Processor* Front-Panel touch screen ([Figure 3-9](#)) or the command [VERsion](#) from the command line interface.

To check for firmware updates for your RGB Spectrum product, visit the **Partner Portal** section of our web site (<http://www.rgb.com/partners/>). (Registration and log-in are required.) Then, select **Product Firmware**.

### 6.2.1 Downloading New Firmware

Firmware updates are posted in the **Partner Portal** section of the RGB Spectrum web site. Download the file to the PC that you will be using to communicate with the *MediaWall V*.

**Note**

The firmware file is in compressed form and will be uncompressed automatically by the *MediaWall V*. Do not uncompress or rename the file.



---

## 6.2.2 Using FTP

You can use an FTP client to transfer firmware or exported configuration files to or from the *MediaWall V 4K/UHD Display Processor*, as follows:

### TRANSFERRING FILES TO THE *MediaWall V* USING FTP

1. Connect the *MediaWall V* to the PC using the Ethernet port, either directly or via a network.
2. Launch your FTP client.
3. Connect to the *MediaWall V* FTP server using its IP address.
4. Enter the user name and password when prompted. The default user name is `rgb`; the default password is `spectrum`.
5. In your FTP client, set the transfer type to Binary.
6. Use your FTP client to initiate a transfer of the firmware, macro or configuration file from your PC to the *MediaWall V*.
7. Disconnect from the *MediaWall V* FTP server.

### TRANSFERRING FILES FROM THE *MediaWall V* USING FTP

1. Follow Steps 1 through 5 for [Transferring Files to the MediaWall V Using FTP](#).
2. Use your FTP client to initiate a transfer of the firmware, macro or configuration file from the *MediaWall V* to your PC.
3. Disconnect from the *MediaWall V* FTP server.



### 6.2.3 Saving System Settings

To save current settings to a PC:

1. Open a serial port or Telnet command session. Follow the steps for establishing [Serial Control on page 44](#) or [Ethernet \(Telnet\) Control on page 46](#).

2. On the command line, type:

```
settingsexport [filename.db]
```

where **[filename.db]** is the name of the settings file that will contain the *MediaWall V 4K/UHD Display Processor* settings. Then, press Enter.

Your command session must be in administrator mode in order to specify a file name. If you do not specify a file name or your session is in user mode, it will be named **export.db**.

Upper- and lower-case letters and numbers may be used in the file name. Do not use spaces or “/” and “\” characters (use the underscore character instead of a space).

3. Follow the steps for [Transferring Files from the MediaWall V Using FTP](#) to move the exported settings from the *MediaWall V* to your PC.

### 6.2.4 Uploading and Installing Firmware

1. Follow the steps for [Transferring Files to the MediaWall V Using FTP](#) to transfer the new firmware file from the PC to the *MediaWall V*.

2. If you have not already done so, enter administrator mode by typing:

```
adminenter
```

Then, type the administrator password when prompted.

3. On the command line, type:

```
ufw
```

If you choose to begin the update, the *MediaWall V 4K/UHD Display Processor* will proceed to load the file. You will see status information in the command window as the update process backs up current firmware, extracts new firmware and shuts down the system.

#### Important

This process may take several minutes. **DO NOT** turn the *MediaWall V* off or remove AC power until the update is complete.

4. **If you are updating from firmware version 1.3 or earlier:** On the command line, type:



---

`rfd`

This command restores all system settings (except for network settings) to their factory-default values and restarts the system.

5. If using Telnet, restart the Telnet command session.
6. To verify that the new firmware is loaded, type the command [VERsion](#) from the *MediaWall V* command line.

### 6.2.5 Restoring Settings

If you find it necessary to restore your *MediaWall V* configuration settings following a firmware update, proceed as follows:

1. Follow the steps for [Transferring Files to the MediaWall V Using FTP](#) to move the exported settings back to the *MediaWall V*.
2. Open a serial port or Telnet command session.
3. Restore the saved settings from the PC using the [SETTINGSIMPORT](#) command.

# CHAPTER 7

# MAINTENANCE AND SERVICE

Customer replaceable parts on the *MediaWall V* include the power supply and the foam air filter. They may be ordered from RGB Spectrum by requesting the following part numbers.

- Power Supply      510-11376-01
- Foam Air Filter    980-11374-01

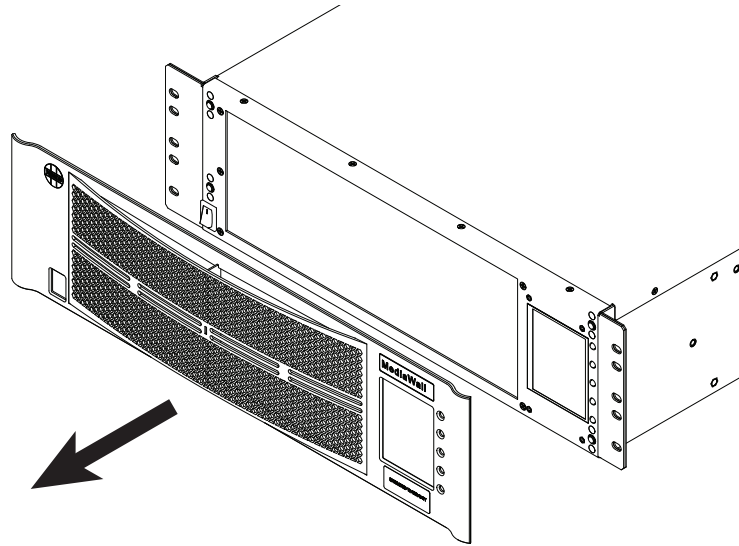
## 7.1 Air Filter Replacement

A clean air filter is necessary for proper operation of the *MediaWall V*. (The *MediaWall V* Model 550 Series has two (2) air filters.)

A clogged filter may cause the unit to overheat. When operated in a clean environment, the filter(s) should be checked about once a month. Where dust and dirt are an issue, the filter(s) should be inspected more frequently.

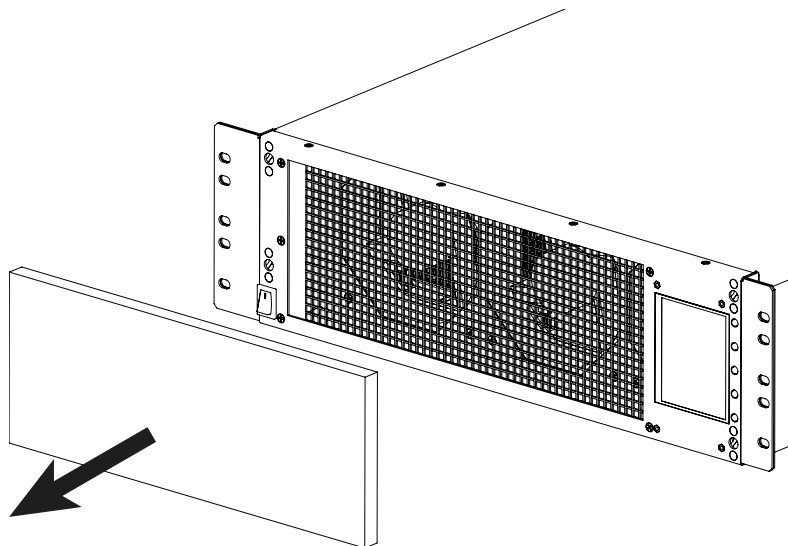
To replace an air filter.

1. Turn off the AC power switch.
2. Remove the air filter cover on the front of the chassis by grasping the left and right edges and pulling the cover toward you.



**Figure 7-1** Removing the Air Filter Cover

3. Gently remove the foam filter.



**Figure 7-2** Removing the Air Filter

4. Insert the new or cleaned filter. If you are cleaning and reusing the filter, refer to the next section, [Cleaning an Air Filter](#).
5. Replace the air filter cover.
6. Power the unit on again.



## 7.2 Cleaning an Air Filter

Filters which are neither torn nor shredded can be washed and reused. To clean the air filter:

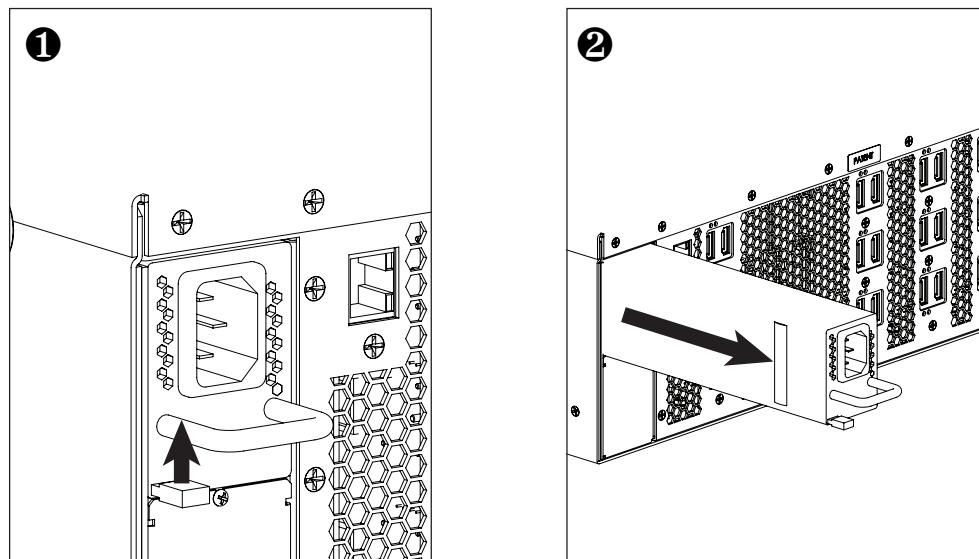
1. Wash the filter in mild dish detergent. **Do not use alcohol or other solvents.**
2. Rinse in clear water.
3. Press it between paper towels to remove excess moisture.
4. Allow the filter to air dry before re-installing it in the *MediaWall V*.

## 7.3 Power Supply Replacement

The *MediaWall V* may remain powered on while an optional, second power supply is inserted or removed into either chassis. (With the redundant power supply option, the *MediaWall V* Model 500 Series has two power supplies; the *MediaWall V* Model 550 Series has four power supplies.) It is not necessary to disassemble the *MediaWall V* in order to replace a power supply.

To replace a power supply, disconnect the power cord from the supply to be replaced. Then:

1. Push the gray release lever up.
2. While holding the gray release lever in the up position, grasp the power supply handle and pull the supply out of the chassis.



**Figure 7-3** Removing a Power Supply

3. Slide the new power supply into place until it clicks, locking into the chassis.
4. Replace the power cord.

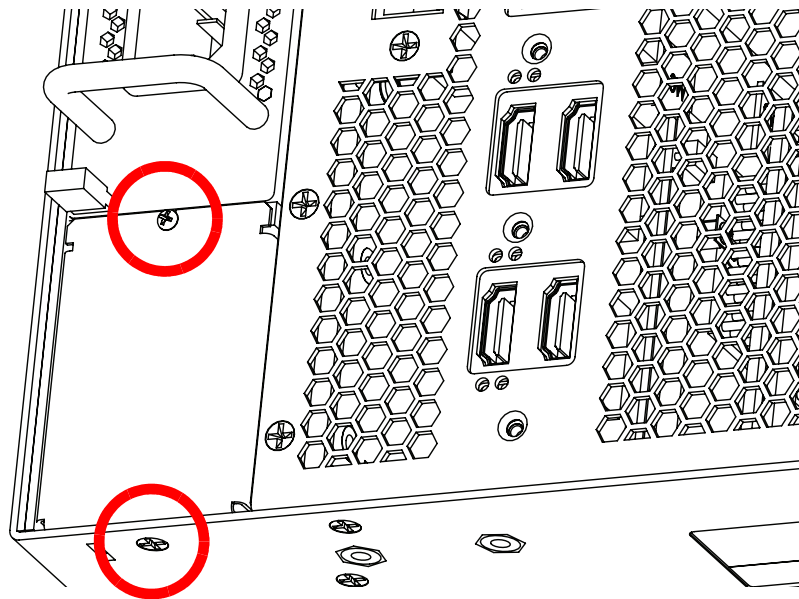




## 7.4 Adding a Power Supply (MediaWall V Model 500 Series only)

You can add a second power supply to a *MediaWall V* Model 500 Series to provide redundancy. You can do this without taking the system out of service. Proceed as follows:

1. Remove the two screws that secure the cover plate over the power supply bay. See [Figure 7-4](#).



**Figure 7-4** Power Supply Cover Plate

2. Remove the plate.
3. Slide the power supply in until it locks into position.

Save the cover plate and screws. The plate must be re-installed if the second power supply is removed.

# CHAPTER 8

# TECHNICAL SPECIFICATIONS

This chapter provides detailed technical specifications for the *MediaWall V 4K/UHD Display Processor*. All specifications are subject to change at any time without notice.

- [Wall Specifications](#)
- [Input Specifications](#)
- [Output Specifications](#)
- [Window Display Specifications](#)
- [Control Specifications](#)
- [Power and Physical Specifications](#)
- [Environmental Specifications](#)

## 8.1 Wall Specifications

**Table 8-1 Wall Specifications**

Parameter	Specification
Layouts	Up to 100
Mullion Compensation	Up to 400 pixels (width) and/or 400 lines (height)
Output Overlap	Up to 1920 pixels of horizontal and/or vertical overlap
Label Display Options	<ul style="list-style-type: none"> <li>◆ Characters per label: up to 64</li> <li>◆ Position: Anywhere on output space</li> <li>◆ Font Styles: 50</li> <li>◆ Font Sizes: 4</li> <li>◆ Text/Background Color Depth: 24-bit</li> </ul>
Clock Display Options	<ul style="list-style-type: none"> <li>◆ Number of clocks per wall: up to 6</li> <li>◆ Position: Anywhere on output space</li> <li>◆ Font Sizes: 3</li> <li>◆ Time Format: 12- or 24-hour, HH:MM or HH:MM:SS</li> <li>◆ Date Format: U.S. (mm-dd-yyyy) or ISO 8601 (yyyy-mm-dd), 2- or 4-digit year</li> <li>◆ Text Color Depth: 24-bit</li> </ul>



## 8.2 Input Specifications

**Table 8-2 Input Specifications**

Parameter	Specification
Input Count (max)	<ul style="list-style-type: none"> <li>◆ <b>Model 500 Series:</b> 18</li> <li>◆ <b>Model 550 Series:</b> 36</li> </ul>
Resolution	640 × 480 @ 85Hz to Ultra HD (UHD) 3840 × 2160 @ 30Hz and 4096 × 2160 @ 24Hz
Connector Type	HDMI 1.4b
Pixel Clock Rate	Up to 297 MHz
Color Depth	24-bit
Color Space	<ul style="list-style-type: none"> <li>◆ Standard-definition sources: RGB or YCbCr (BT.601)</li> <li>◆ 2K/HD sources: RGB or YCbCr (BT.709)</li> <li>◆ 4K/UHD sources: RGB</li> </ul>
Source Routing	Any 2K/HD (or lower-resolution) source input to any window (4K/UHD sources must be routed to UHD windows)
Label Text Options	<ul style="list-style-type: none"> <li>◆ Characters per label: up to 64</li> <li>◆ Font Styles: 50</li> <li>◆ Font Sizes: 4</li> <li>◆ Text/Background Color Depth: 24-bit</li> </ul>
Label Position Options	<ul style="list-style-type: none"> <li>◆ Outside/inside border</li> <li>◆ Outside/inside window</li> <li>◆ Top or bottom</li> <li>◆ Centered, left- or right-aligned</li> </ul>

## 8.3 Output Specifications

**Table 8-3 Output Specifications**

Parameter	Specification
Output Count (max)	<ul style="list-style-type: none"> <li>◆ <b>Model 500 Series:</b> 12 @ 2K/HD, plus 2 Auxiliary Outputs 6 @ 4K/UHD, plus 2 Auxiliary Outputs</li> <li>◆ <b>Model 550 Series:</b> 24 @ 2K/HD, plus 4 Auxiliary Outputs 12 @ 4K/UHD, plus 4 Auxiliary Outputs</li> </ul>
Wall Output Resolution	<b>HDMI:</b> Up to 3840 × 2160 @ 30Hz and 4096 × 2160 @ 24Hz <b>DisplayPort:</b> 3840 × 2160 @ 24Hz, 25Hz, 30Hz, or 60Hz
Auxiliary/Switched Output Resolution	Dependent on source input resolution
Connector Type	HDMI 1.4b or DisplayPort 1.2



## 8.4 Window Display Specifications

**Table 8-4 Window Display Specifications**

Parameter	Specification
Number	<ul style="list-style-type: none"> <li>◆ <b>Model 500 Series:</b> Up to 32</li> <li>◆ <b>Model 550 Series:</b> Up to 64</li> </ul>
Border Options	<ul style="list-style-type: none"> <li>◆ Color Depth: 24-bit</li> <li>◆ Width: Up to 100 pixels</li> </ul>
Label Text Options	Refer to <a href="#">Table 8-2</a>
Label Position Options	Refer to <a href="#">Table 8-2</a>

## 8.5 Control Specifications

**Table 8-5 Control Specifications**

Parameter	Specification
Control Options	<ul style="list-style-type: none"> <li>◆ <i>MediaWall V</i> Web Interface</li> <li>◆ Multipoint Control Room Management System™ (MCMS) v3.2 or later</li> <li>◆ <i>VIEW</i>™ Controller v3.2 or later</li> <li>◆ Command-line Interface via RS-232 serial or Telnet connection</li> <li>◆ Support for third-party control systems</li> </ul>
Ethernet (100/1000Base-T)	<ul style="list-style-type: none"> <li>◆ Interface Type: Automatic Medium-Dependent Interface Crossover (Auto MDI-X)*</li> <li>◆ Connector Type: 8-pin, RJ45</li> <li>◆ Transfer Mode: Full-duplex</li> </ul>
RS-232 Port	<ul style="list-style-type: none"> <li>◆ Interface Type: Data Circuit-terminating Equipment (DCE)</li> <li>◆ Transfer Mode: Full-duplex</li> <li>◆ Character Formatting: Asynchronous (start-stop)</li> <li>◆ Baud Rate: 115200 (default), 57600, 38400, 19200, or 9600</li> <li>◆ Connector Type: 9-pin, sub-miniature D connector</li> </ul>
<p>* Supports both network connection (through a hub, router or switch) and direct, peer-to-peer connection to a control PC, using a standard Ethernet cable. A crossover cable is not necessary.</p>	



## 8.6 Power and Physical Specifications

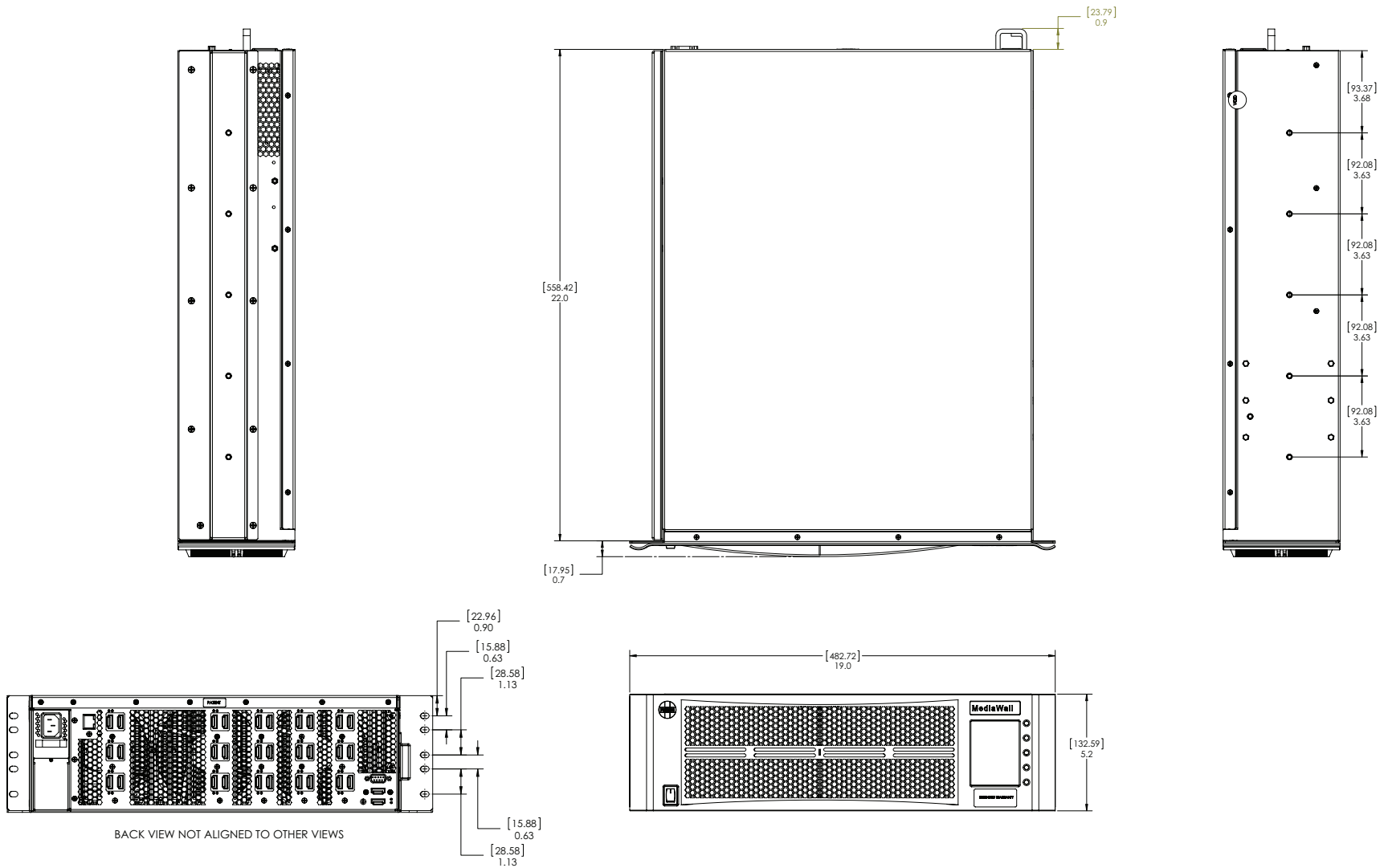
**Table 8-6 Power and Physical Specifications**

Parameter	Specification
Power Supply	<ul style="list-style-type: none"> <li>◆ <b>Model 500 Series:</b> 850 W capacity, hot-swappable (Redundant, second power supply optional)</li> <li>◆ <b>Model 550 Series:</b> 2 × 850 W capacity, hot-swappable (Redundant power supplies optional)</li> </ul>
Input Voltage	100-240 VAC @ 50-60 Hz, auto-ranging
Power Consumption	<ul style="list-style-type: none"> <li>◆ <b>Model 500 Series:</b> 450 W maximum</li> <li>◆ <b>Model 550 Series:</b> 900 W maximum</li> </ul>
AC Power Cord	NEMA5-15P/IEC 60320-C13, 15A, 8 ft. (2.44 m), UL/CSA
Dimensions	<ul style="list-style-type: none"> <li>◆ <b>Model 500 Series:</b> See <a href="#">Figure 8-1</a></li> <li>◆ <b>Model 550 Series:</b> See <a href="#">Figure 8-2</a></li> </ul> (dimensions are in [millimeters] and inches)
Weight	<ul style="list-style-type: none"> <li>◆ <b>Model 500 Series:</b> 40 lbs. (18.14 kg), fully loaded</li> <li>◆ <b>Model 550 Series:</b> 82 lbs. (37.20 kg), fully loaded</li> </ul>
Cable Management	Strain Relief Bar

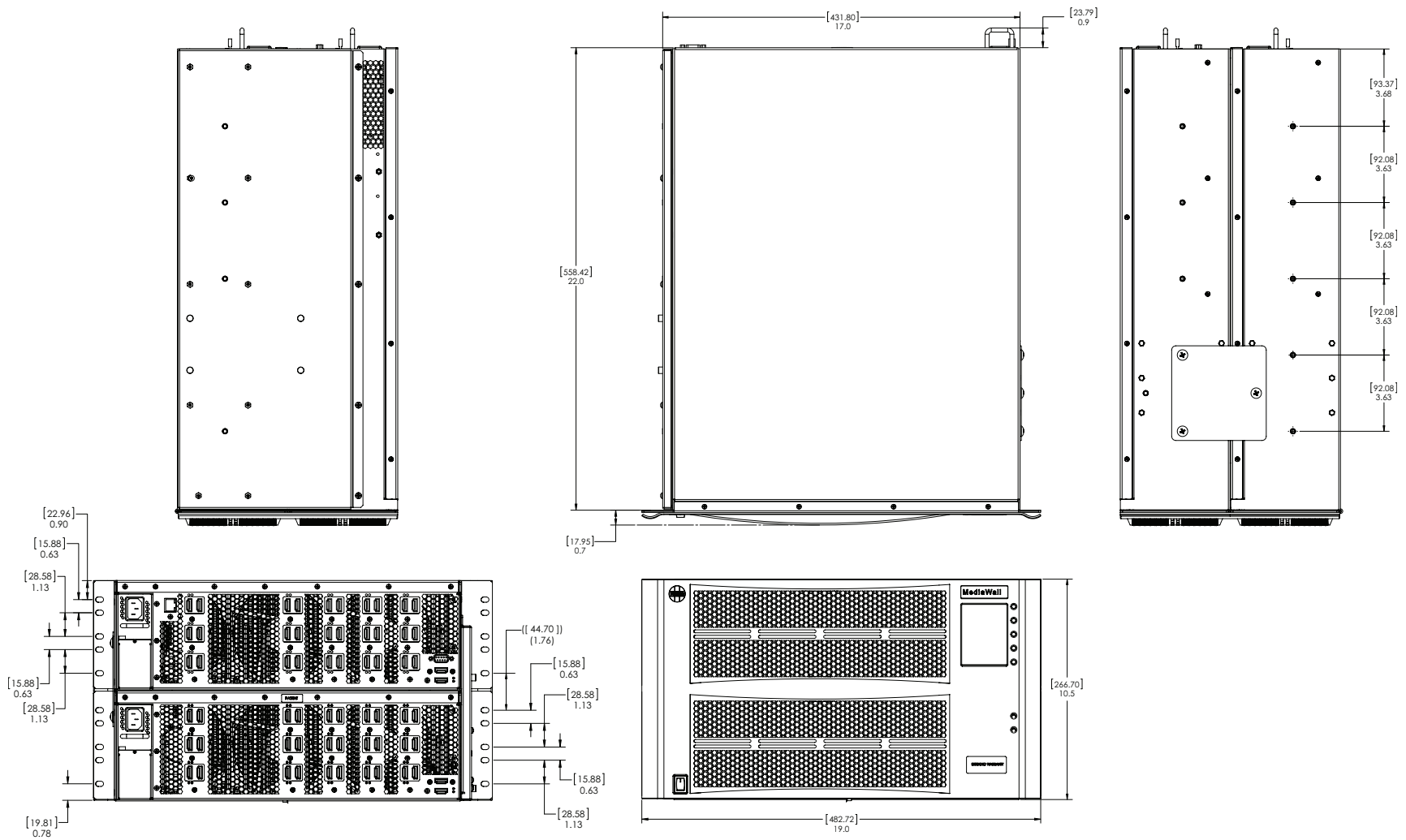
## 8.7 Environmental Specifications

**Table 8-7 Environmental Specifications**

Parameter	Specification
Temperature	Operating (nominal): 41 °F to 104 °F (5 °C to 40 °C) Non-Operating: -4 °F to 158 °F (-20 °C to 70 °C)
Relative Humidity	Operating: 5% to 90% non-condensing
Altitude	Operating: Up to 13,123 ft (4 km)



**Figure 8-1 MediaWall V Model 500 Series Overall Dimensions**



**Figure 8-2 MediaWall V Model 550 Series Overall Dimensions**

# CHAPTER 9

# CONTACT INFORMATION

## 9.1 Corporate Headquarters

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Fax: +1-510-814-7026

Web: <http://www.rgb.com>

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