RMV16 Series

- RMV16-4C
- RMV16-16C

1RU 16-Channel/3RU 64-Channel, 3G/HD/SD-SDI and Analog, Audio/Video High Definition, Multi-Viewer System

User Guide
(Software Release: V2.3.4)

Part Number 821080, Revision E

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Last Update

May 29, 2013

Table of Contents

Preface

Introduction

Overview

The preface lists the new features and functionality for this release.

Topics

What's New?

In this software release, we have added four new features to enhance the arrangement and functionality of your viewer.

Alarms

You can now add both audio and video alarms.

Linear Time Code (LTC)

You can now either create a current date/time from the PC or from the program time code.

Timers

You can now create any number of timers to count down from any number of hours (up to 99) and minutes.

GPI (General Purpose Input) Tallies

We have also added eight GPIs on the 8GP board and 16 GPIs on the GPT board.

CHAPTER 1
Installing the Hardware

Introduction

Overview

The RMV16 Series is a professional broadcast quality 1RU/3RU rack mount multiviewer supporting up to 64 SDI inputs and up to 32 video displays (3RU model). We designed the RMV16 Series to meet the demands of a wide variety of environments such as master control rooms, studio control rooms, play out/monitoring centers, head ends and other applications such as video conferencing and multimedia.

An easy to use PC-based GUI (graphical user interface) provides a fast and efficient method of creating and recalling templates. The modular platform of the RMV16 Series supports 3G/HD/SD-SDI and analog composite video input formats.

The RMV16 Series allows for complete mix and match of various video standards to be displayed on the multiviewer at any given time as well as complete scaling/sizing of any display window for total flexibility.

Topics

Safety

Important Safety Instructions

1. Read, keep, and follow all of these instructions; heed all warnings.
2. Do not use this equipment near water, rain or moisture.
3. Use only a dry cloth to clean the equipment.
4. Do not block any ventilation openings. Install only in accordance with the instructions in the section entitled, "Installation Recommendations" on page 3.
5. Do not install near any heat source such as a radiator, heat register, amplifier, or stove.
6. Do not attempt to plug the unit into a two-blade outlet (with only two prongs of equal width).

IMPORTANT: By design, these monitors will only plug into a three-prong outlet for your safety. If the plug does not fit into your outlet, contact an electrician to replace the obsolete outlet.

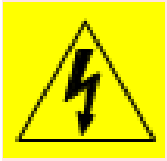
7. Protect the power cord from being walked on or pinched, particularly at plug's source on the equipment and at the socket.
8. Use only the attachments/accessories specified by the manufacturer.
9. Unplug the equipment during lightning storms or when unused for long periods of time.
10. Use of a cart is neither recommended nor approved by Wohler.

11. Refer all servicing to qualified service personnel. Servicing will be required under all of the following conditions:

    - The equipment has been damaged in any way, such as when the power-supply cord or plug is damaged.
    - Objects have fallen onto the equipment; or the equipment has been exposed to rain or moisture, or liquid has been spilled onto the equipment.
    - The equipment does not operate normally.
    - The equipment has been dropped.

Safety Symbols

WARNING:



The symbol to the left warns of electric shock hazard inside the unit. Disconnect the power cord before removing access panels when installing upgrades. Only qualified service personnel are to operate the equipment with covers removed, and are to exercise caution to avoid personal injury.

Installation Recommendations

Mounting

The unit is designed to install into a standard 19" rack. Please adhere to the following clearances:

Clearance	Surface
24″	Front
3″	Rear
2″	Sides (never block vents at rear of sides)
1.75″	Top and bottom (if equipment nearby radiates heat)
0″	Top and bottom (if no heat)
(3RU) Top and bottom panel vents along rear 4″ must not be blocked. This particularly applies to bench mounting.	

Heat Dissipation

The ambient temperature inside the mounting enclosure should not exceed 40° Celsius (104° Fahrenheit). Adjacent devices can be rack mounted (or stacked) in proximity to the unit if this temperature is not exceeded. Otherwise, allow a 1RU (1.75”/44.45mm) space above and below the unit for air circulation.

Important: Heat generated by the power supplies, and other components is vented by fans and cold air intakes. Therefore, as a safety precaution, and as a necessity for reliability, you must allow proper air flow through all vent surfaces.

Mechanical Bracing

Even though the loaded 3RU models are fairly heavy, the chassis is securely attached to the front panel. In addition, the chassis has mounting tabs through which you attach it to the rack rail. This feature will reduce or eliminate rear bracing requirements in many mobile/portable applications. The weight of internal components is distributed fairly evenly around the unit.

Audio Connections and Cable Recommendations

We recommend that you limit the length of the cables that you use for feeding HD-SDI signals sources to the HD-SDI inputs to a Belden 1694A cable (or equivalent). The HD-SDI inputs can be up to 150 meters (492 feet) in length

Electrical Interference

Be careful to apply proper signals and avoid mismatched cable types and other similar causes of undesired reflections in digital signal systems. If severe enough, such reflections can result in corruption of the digital data stream. As with any audio equipment, maximum immunity from electrical interference requires the use of shielded cable; however, satisfactory results can sometimes be obtained without it. The internal circuitry ground is connected to the chassis.

Power

The frames include dual, redundant, hot-swappable power supplies that connect to an A/C mains power source (100 to 240 VAC, 50/60Hz) through the IEC connectors on the rear panel of the unit. We recommend that you connect each power cord to a separate power branch circuits to minimize the chance of power interruption.

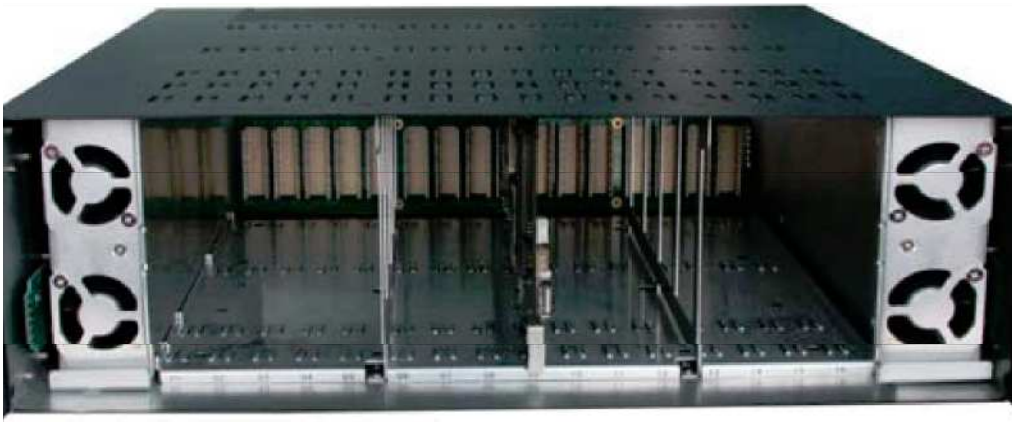
When the mains plug or appliance coupler is used as the disconnect device, the disconnect device should remain operable.

Installation

It is easier to load the rear I/O and front processor cards before installing the frame into the rack.

1. Remove the front panel by pressing the latches inward and pulling toward you. Figure 1–1 shows the front panel removed.

Figure 1–1 Front Panel Removed



2. Connect power to both power supplies.

3. Insert the additional processor cards you purchased for this unit being careful to align them in the frame slots to engage the corresponding I/O card.

4. Replace the front panel.

5. Screw in the rear panel connectors for each I/O card, locating input expansion cards in adjacent and lower-numbered slots for source groups defined by the output module locations.

   Note: Input boards must be located in adjacent lower-numbered slots with respect to the output board they can work with. So the physical locations of each input boards determines how the source groups are configured. In other words, output boards only know about lower-numbered input boards and stop looking when they hit an output board or empty slot.

6. Install the pre-loaded frame into the rack or bench, remembering to watch for adequate air flow.

Modular Design

Capacity

You can customize both the 1RU and the 3RU models by adding optional modules. Each module consists of an I/O card, installed from the rear, coupled to a processor card installed from the front.

Table 1–1 Module Capacity Per Model

Model	Maximum Capacity
RMV16-4C-1RU	4 Optional Modules: 1 to 2 Output (fit in upper slots only)
RMV16-16C-3RU	16 Optional Modules: 1 to 16 Output

Optional Cards

You can add any combination of the optional cards to either of the two models. Refer to Figure 1–2 through Figure 1–4 on page 7.

Figure 1–2 RMV16-3G-HDMI I/O Card

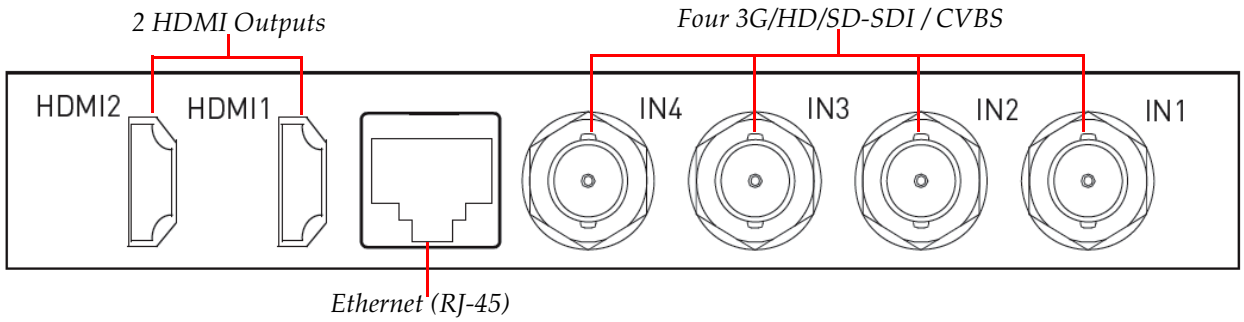


Figure 1–3 RMV16-3G-8GP I/O Card

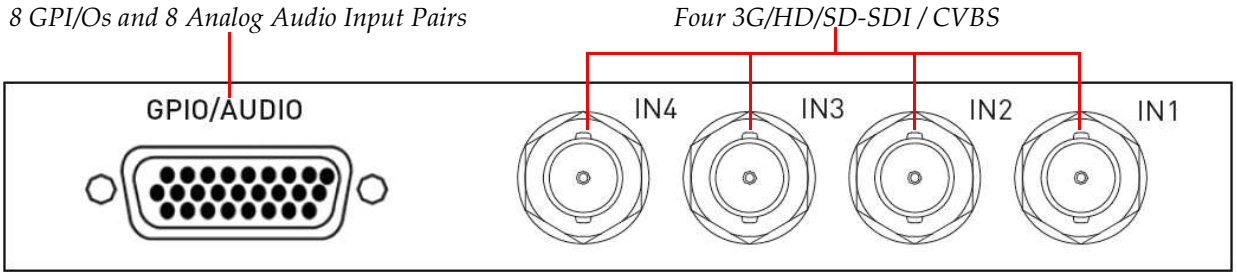


Figure 1–4 RMV16-3G-16GPT I/O Card

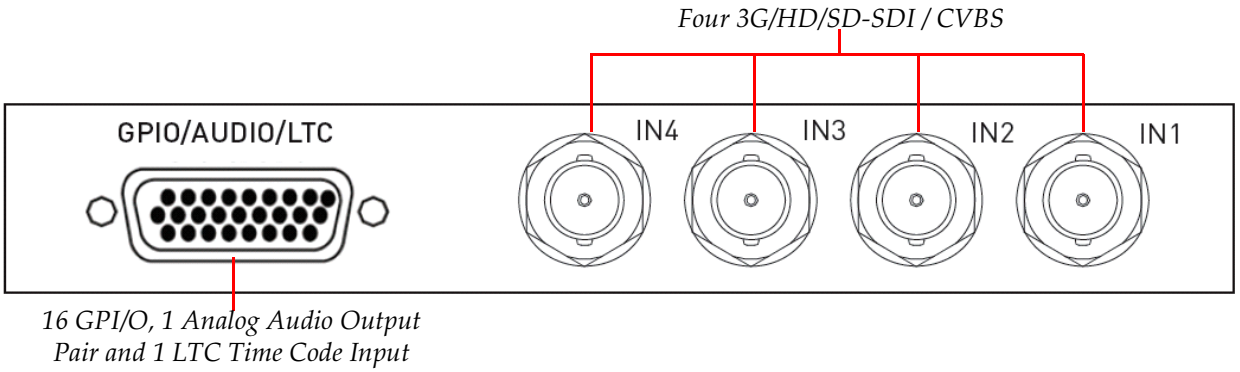


Table 1–2 below summarizes the connector types and quantities on each of the three cards.

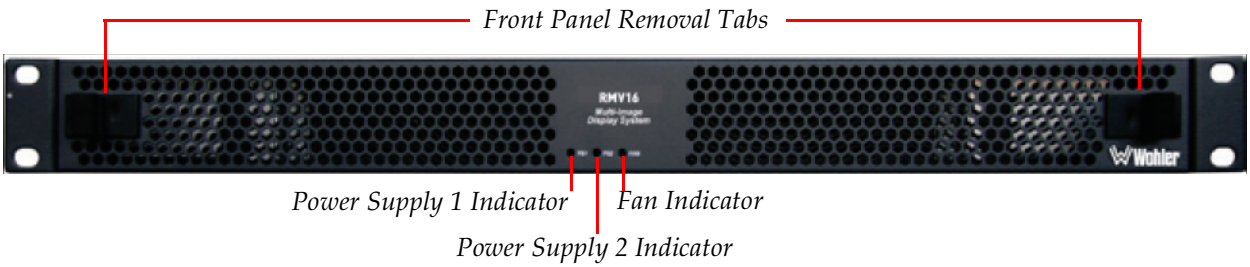
Table 1–2 Optional Card Descriptions

Card	Inputs	Outputs	Bi-Directional
RMV16-3G-HDMI	3G/HD/SD-SDI / CVBS (4 BNCs): autosensing	HDMI (2) 1080p 50/60 720p 50/60	Ethernet (1 RJ-45)
RMV16-3G-8GP	3G/HD/SD-SDI / CVBS (4 BNCs): autosensing Stereo analog audio pairs (8 on DB-26)	—	GPI/O (8 on DB-26)
RMV16-3G-16GPT	3G/HD/SD-SDI / CVBS (4 BNCs): autosensing LTC Time Code (1 on DB-26)	Stereo Analog Audio Pair (1 on DB-26)	GPI/Os (16 on DB-26)

Front Panel

The descriptions below refer to Figure 1–5 below (1RU) and Figure 1–6 on page 9 (3RU).

Figure 1–5 RMV16-4C-1RU Front Panel



Front Panel Removal Tabs: Press both tabs inward to release the front panel from the unit to add or remove option processor cards.

Power Supply (PS) 1/2 Indicators: These indicators are lit when each of the power supplies are receiving power.

Fan Indicator: This indicator is lit when the fan is receiving power.

Figure 1–6 RMV16-16C-3RU Front Panel

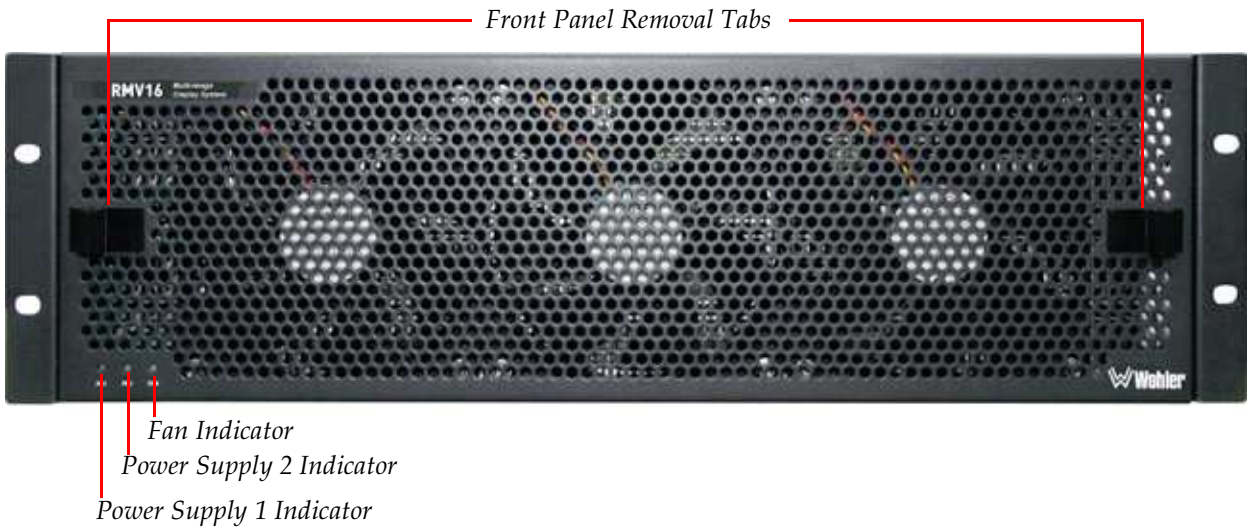


Table 1–3 LED Color Definitions

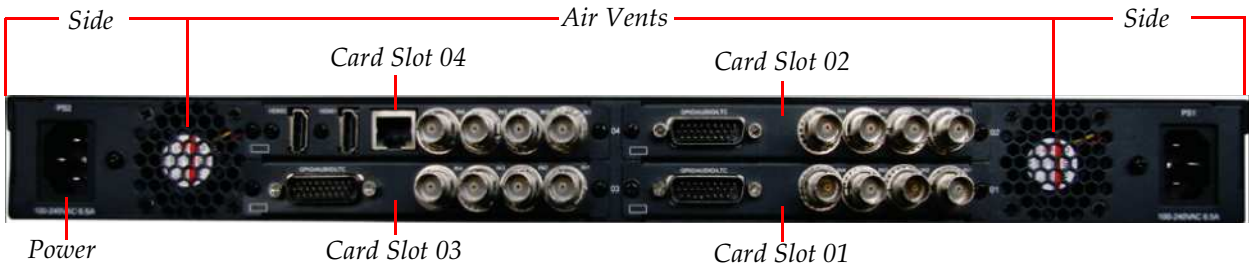
Color	Definition
Green	The power supply or fan is working normally.
Red	The power supply or fan is experiencing a problem.

Important: The front panel fan module is required to be in place for continuous cooling of the cards. In may be removed while in operation only long enough to hot swap the cards for trouble-shooting. Push the fan module back into place as soon as possible (until the tabs click and lock into place).

Rear Panel

The following descriptions refer to Figure 1–7 below and Table 1–7 on page 12.

Figure 1–7 RMV16-4C-1RU Rear Panel

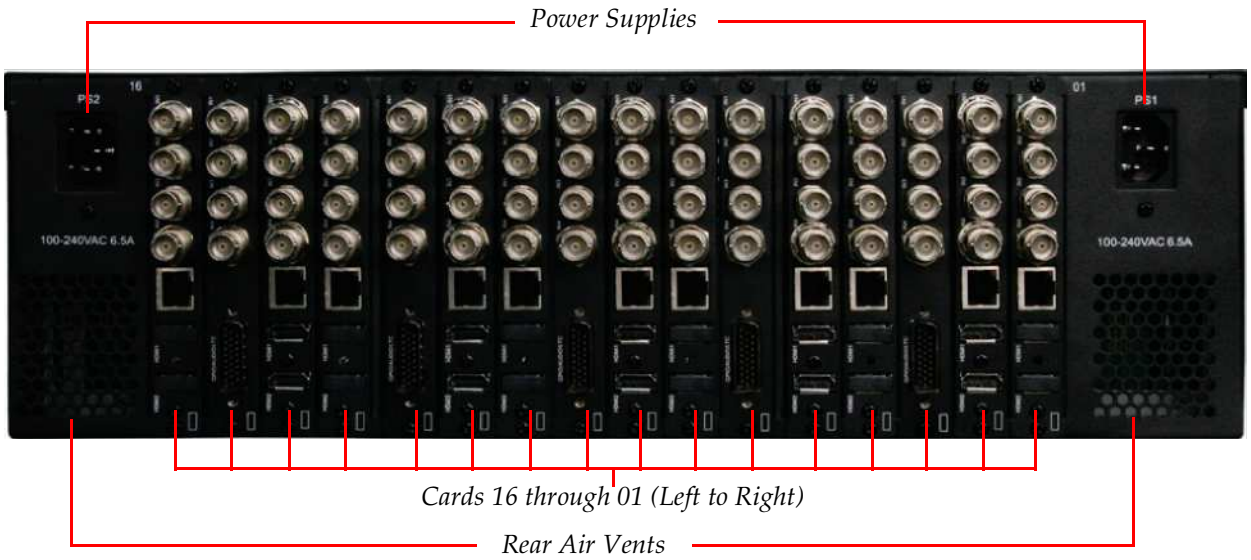


Power: Both power connectors accept standard IEC power supplies.

Air Vents: Outputs for the fans on the front panel.

Card Slots: The 1RU can take up to four optional I/O cards; the 3RU can take up to 16. Refer to Modular Design on page 6 for a detailed description of each of the three option modules.

Figure 1–8 RMV16-16C-3RU Rear Panel



Important: Do not block the bottom air vents (not shown).

Specifications

Table 1–4 below summarizes the physical dimensions and weight of both the 1RU and the 3RU.

Table 1–4 Physical Specifications

Specification	1RU	3RU
Dimensions (not including connectors)	19″ W x 18.0″ D x 1.7″ H (482 mm W x 457 mm D x 43 mm H)	19″ W x 18.5″ D x 5.2″ H (482mm W x 469 mm D x 132 mm H)
Net Weight (Empty)	14.8 lbs.	25 lbs.

Table 1–4 Physical Specifications (Continued)

Specification	1RU	3RU
Shipping Weight (Empty)	Approx. 18 lbs. Approx. (8.16 kg)	Approx. 28 lbs. (12.70 kg)
Working Air Temperature	32 to 104° Fahrenheit 0 to 40° Celsius	

Table 1–5 below summarizes the specifications for power requirements and consumption. Note that both the 1RU and the 3RU come with redundant power supplies. For best backup performance, we recommend that you connect each power supply to a different breaker.

Table 1–5 Power Specifications

Specification	1RU	3RU
Voltage	100 to 240 V AC	
Frequency	50/60 Hz	
Power	150 W Max	480 W Max

Table 1–6 below summarizes the acceptable signal types, typical return loss and the connector type for each signal type. The impedance for all signal types is 75 Ω on BNC connectors.

Table 1–6 SDI and Analog Input Signal Specifications

Specification	HD	SD	Analog
Standards	-Active Lines- 1080i (50, 59.94, 60) 1080sf (25, 29.97, 30) 1080p (23.98, 24, 25, 29.94, 30, 50, 59.94, 60 720p (50, 59.94, 60)	-Total Lines- 525i (59.94, 60) 625i (50)	NTSC and PAL
Return Loss	> 15 dB (5 MHz to 750 MHz) > 10 dB (750 MHz to 1.5GHz)	> 15 dB to 270 MHz	35 dB to 5.75 MHz

Table 1–7 below summarizes the analog audio input specifications for both the RMV16-3G-8GP and the RMV16-3G-16GPT.

Table 1–7 Analog Audio Input Specifications

Specification	Value
Standards	8-channel unbalanced stereo analog audio, or 16-channel unbalanced monophonic analog audio
Impedance	10K Ω single ended
Peak Ballistic	Rise Time: 10 ms Fall Time: -20dB/s
VU Ballistic	300 ms
Scales	0 to -60dBFS
Maximum Level	+24dBu
Connector	DB-26 (Male)

Features

- Any combination of auto-sensing 3G/HD/ SD-SDI and analog composite inputs
- Any input format can be displayed at any position with any scaling
- Maximum resolution of output display: 1920x1080
- Easy to use PC-based configuration GUI
- Analog audio input and audio monitoring of embedded and external audio
- Up to 8 audio meters displayed per video window
- Multiple audio display windows for audio-only monitoring
- 16:9/4:3 aspect ratios
- Ethernet control
- Ability to display image files (JPEG, GIF, and PNG)
- Analog clock and/or digital clock displays

- Video and audio alarming and alarm parameters setup
- Dual power supplies
- 24/7 mission critical reliability

Pin Outs

Figure 1–9 below illustrates the DB-26 pin-out numbering schema for both the RMV16-3G-8GP and RMV16-3G-16GPT cards.

Figure 1–9 DB-26 Pin-Out Numbering Schema

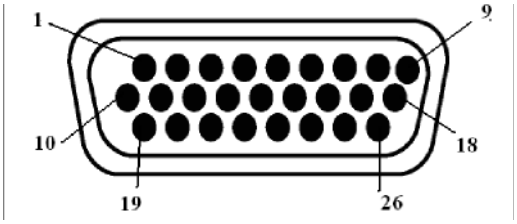


Table 1–8 lists the DB-26 pin definitions for the RMV16-3G-8GP card.

Table 1–8 RMV16-3G-8GP Pin-Out

Pin	Abbreviation	Description
1	A-IN 01	Analog Audio Input 01
10	A-IN 02	Analog Audio Input 02
19	A-IN 03	Analog Audio Input 03
2	A-IN 04	Analog Audio Input 04
11	A-IN 05	Analog Audio Input 05
20	A-IN 06	Analog Audio Input 06
3	A-IN 07	Analog Audio Input 07
12	A-IN 08	Analog Audio Input 08
21	A-IN 09	Analog Audio Input 09
4	A-IN 10	Analog Audio Input 10
13	A-IN 11	Analog Audio Input 11
22	A-IN 12	Analog Audio Input 12
5	A-IN 13	Analog Audio Input 13
14	A-IN 14	Analog Audio Input 14
23	A-IN 15	Analog Audio Input 15
6	A-IN 16	Analog Audio Input 16

Table 1–8 RMV16-3G-8GP Pin-Out (Continued)

Pin	Abbreviation	Description
7		GPI/O 01
16		GPI/O 02
25		GPI/O 03
8		GPI/O 04
17		GPI/O 05
26		GPI/O 06
9		GPI/O 07
18		GPI/O 08
15		Ground
24		

Table 1–8 lists the DB-26 pin definitions for the RMV16-3G-16GPT card.

Table 1–9 RMV16-3G-16GPT Pin-Out

Pin	Abbreviation	Description
1		GPI/O 01
10		GPI/O 02
19		GPI/O 03
2		GPI/O 04
11		GPI/O 05
20		GPI/O 06
3		GPI/O 07
12		GPI/O 08
21		GPI/O 09
4		GPI/O 10
13		GPI/O 11
22		GPI/O 12
5		GPI/O 13
14		GPI/O 14
23		GPI/O 15
6		GPI/O 16
7	LTC	Time Code Input
16	L-OUT 01	Left audio channel output of the monitored audio
26	R-OUT 01	Right audio channel output of the monitored audio
25	Tx+	Serial Interface - Transmit
9	Tx-	Serial Interface - Transmit

Table 1–9 RMV16-3G-16GPT Pin-Out

Pin	Abbreviation	Description
8	Rx+	Serial Interface - Receive
18	Rx-	Serial Interface - Receive
17	N/A	
15	Ground	
24		

CHAPTER 2
Software Basics

Introduction

Overview

Since an installer for the software component of the RMV16 Series multi-viewers is unnecessary, this chapter describes how to use the RMV16 software.

Topics

Host PC Requirements

The Wohler RMV16Manager software controls the RMV16 hardware over an Ethernet connection. The configuration can be by either peer-to-peer or local area network (LAN) communication. Each player is controlled individually through the static IP address assigned.

- PC Software:
  - Microsoft Windows Operating System:
    - XP
    - Vista (not recommended)
    - Windows 7
  - Web Browser
  - Sun/Oracle Java Run-Time Environment
  - Java SE Version 6 minimum, 32-bit

Important: Any existing 64-bit Java applets must be uninstalled.

- PC Hardware:
  - Pentium-class CPU or higher
  - 200 MB RAM available
  - 50 MB Disc available
  - Video Monitor; 1024 x 768 minimum
  - Keyboard
  - Mouse
  - Network Adapter:
    - Ethernet 10 Base-T minimum;
    - 100 Base-T or higher recommended

Assigning IP Addresses

While each RMV16 Series multi-viewer comes with a unique IP address, your network administrator may want you to assign a new IP for each of your RMV16s.

Decision Point:

If your network administrator allows you to use the native IP addresses of your new RMV16s, then continue on to Software Installation immediately below.

Otherwise, continue on to Appendix B on page 69.

Software Installation

To obtain this application, simply go to **www.wohler.com**, log in, and follow the pull down menus: **Products > Video > Multi Viewer > RMV16**. Click the **Downloads** tab and then click the zip file there. Copy the zip file to your desktop. Open the zip file and then copy the **RMV16Manager.exe** file within it to the location of your choice on your hard drive. After doing this, you may delete the zip file.

Running the RMV16 Software

1. Launch the **RMV16Manager.exe** application.

2. If your system security asks, click **Do not ask again** and then click **OK to run**.

Figure 2–10 RMV16 Multi-Viewer Manager Splash Screen

Important: The program will load necessary files into a folder called RMV16Manager, typically at **C:\Documents and Settings*user_name***. This folder must remain where the program puts it.

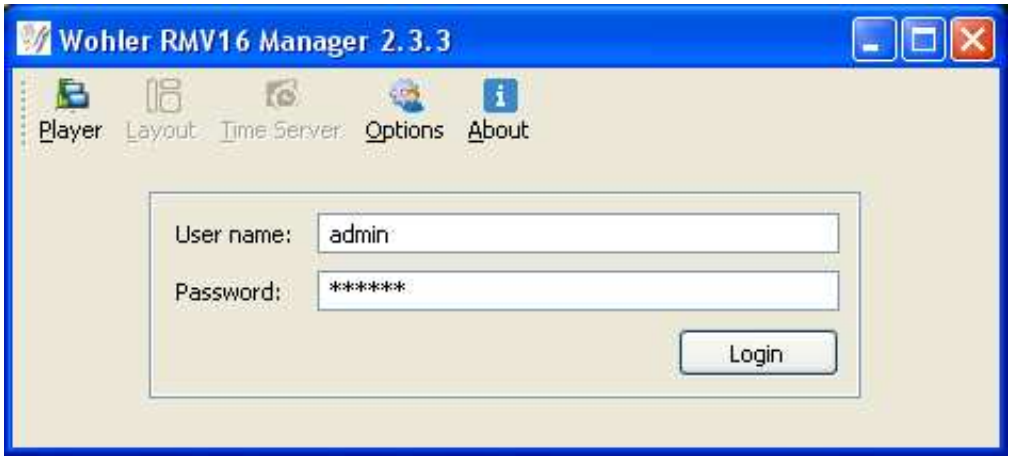
Logging Into the RMV16 Software

1. Login to the web server using:

   A. **Username**: admin (case-sensitive)

   B. **Password**: wohler (case-sensitive)

Figure 2–11 RMV16 Log In Dialog

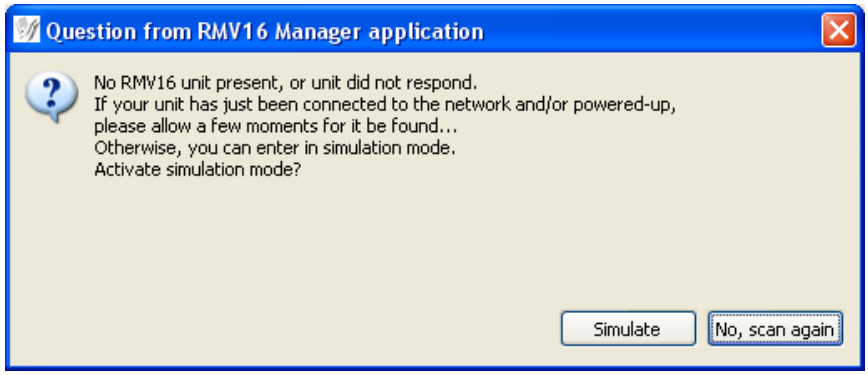


2. Either press Enter or click **Login**.

Scanning the Network

If no players are found, the system will ask you if you want to run in simulation mode (Figure 2–12 on page 21).

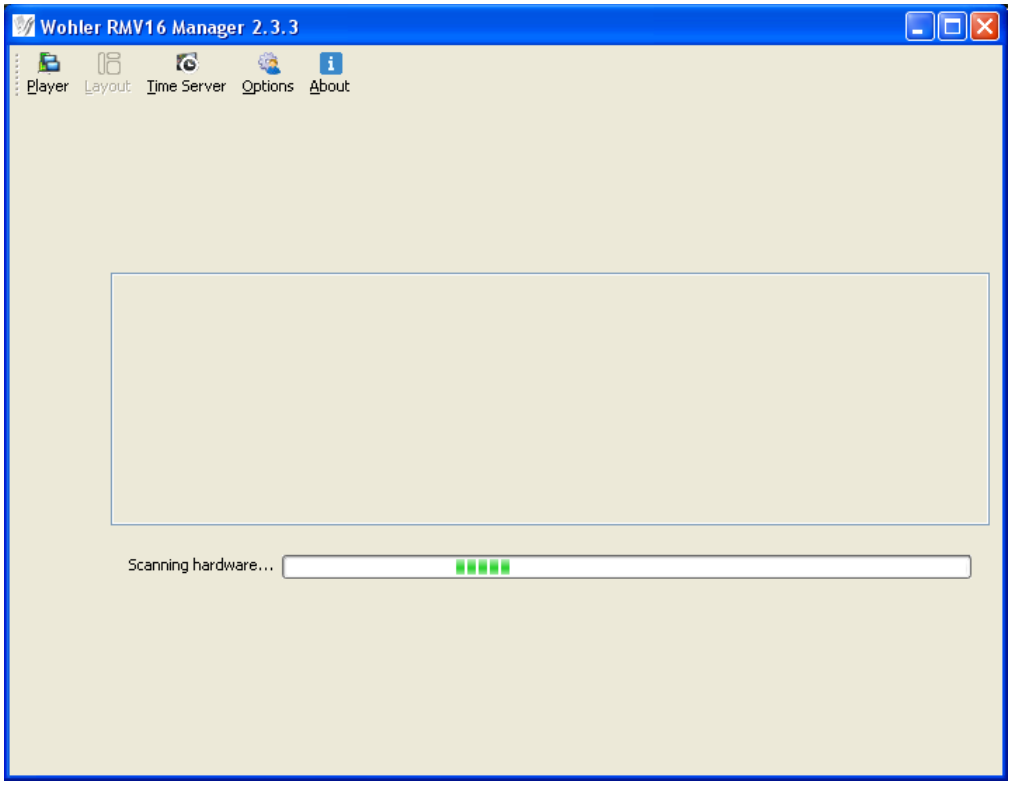
Figure 2–12 No System Available



This is provided for demonstration and training purposes. Simulated layouts may be exported with graphics and functional properties intact, but sources assignments will be generic at best.

If you do not want to run the RMV16 Manager in simulation mode, click **No, scan again**. A progress bar will display while the system is scanning the network for all the RMV16s that are connected to it.

Figure 2–13 Network Scan Dialog

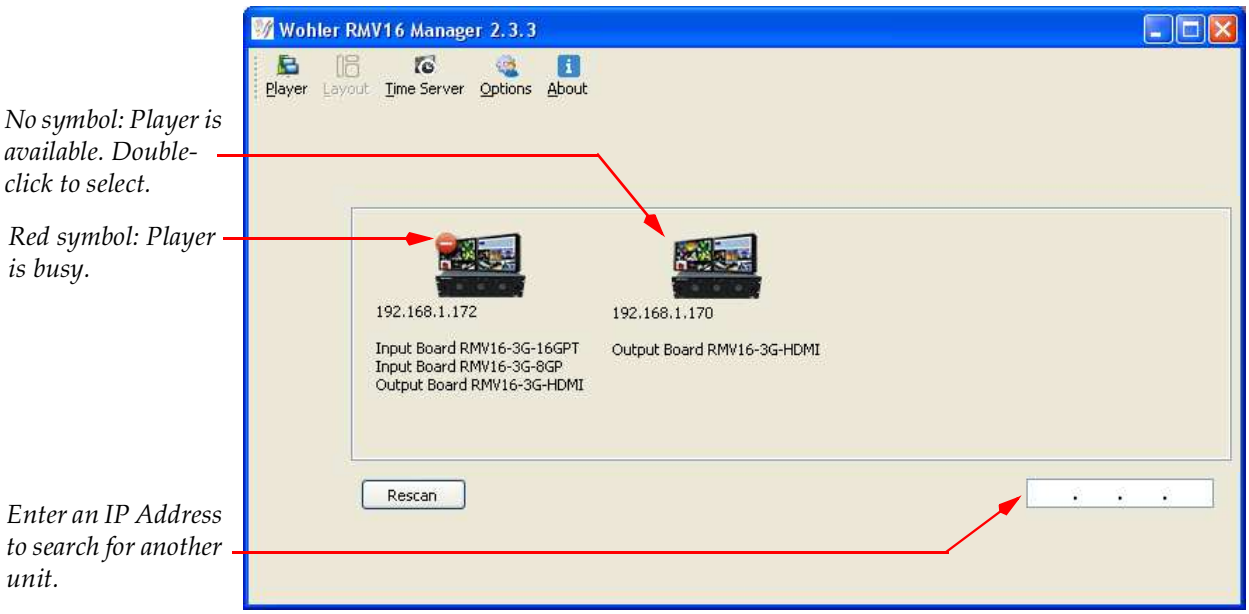


If the RMV16 that you're looking for does not display immediately, wait approximately 30 seconds (depending on the size of your network) for it to display all of the networked RMV16s.

Selecting a Player

When the scanning completes, the system will display all the RMV16s that it found on the network as shown in Figure 2–14 below.

Figure 2–14 Networked RMV16s



Note: Even after the progress bar disappears, the system may still be scanning the network. If you don't see the player you're looking for, wait approximately 30 seconds for the system to finish scanning the network.

Do any one of the following:

- Double-click an available player to select it.
- Right-click to **Restart** or **Unlock** a player. This allows you to perform maintenance activities for exception handling not normally needed when working normally. If two users are not attempting to perform contradictory functions, the results will be unpredictable.

- Type in the IP Address of an alternate player and click **Rescan**.

Note: In the event that the player you're looking for *still* does not display, double-check the cable connections and click **Rescan**.

The RMV16 Manager Interface

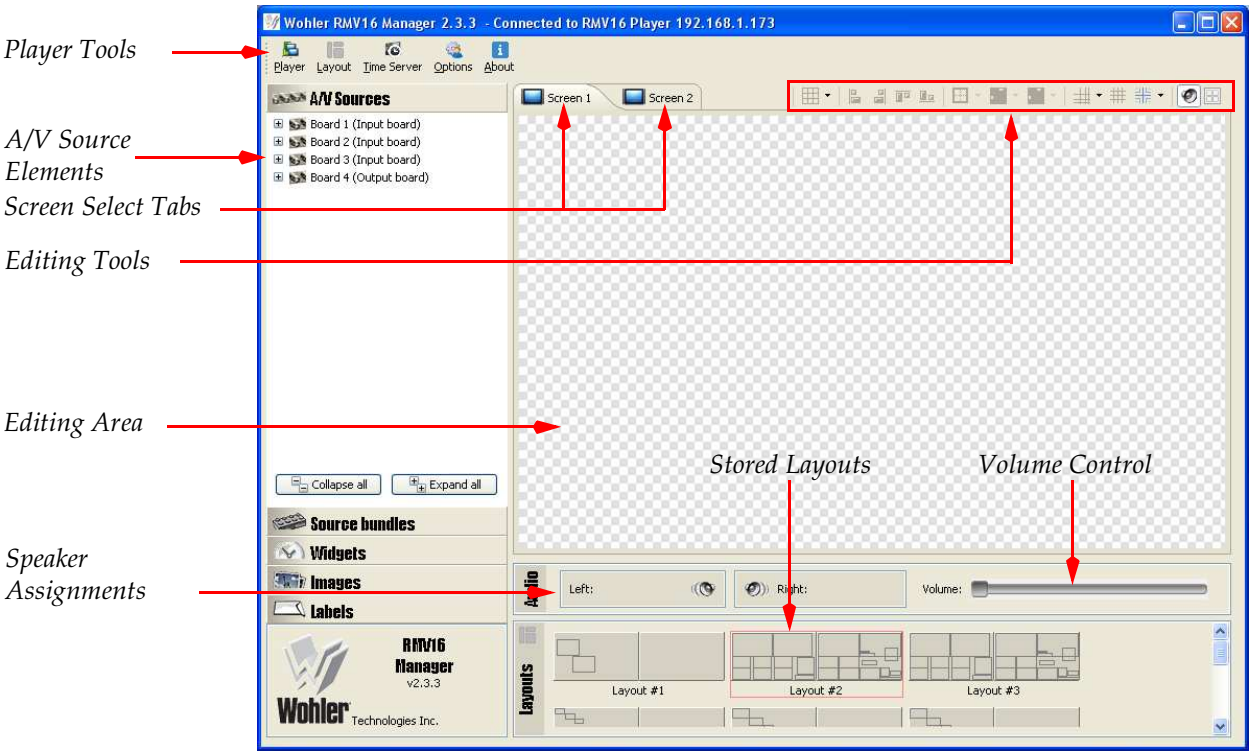
This section will help familiarize you with the RMV16 Manager interface. The three predominant panes are the **A/V Sources** (top left pane), the **Layouts** (bottom right pane), and the **Editing Area** (top right pane) shown in Figure 2–15 below.

Note: The RMV16 Manager may take several seconds to display.

Note: Not only can you resize the entire window, you can also resize each pane to best suit the computer monitor and viewing spaces as needed.

Most all the items in the application window have tool tips. Put your mouse cursor over one of the editing tools, for example, to see a description of its functionality.

Figure 2–15 RMV16 Manager



A/V Sources Pane

In the **A/V Sources** pane, the board-numbers are the physical slot numbers for the player's hardware I/O modules. Refer to Figure 1–7 on page 9 for the hardware's physical arrangement.

Expand **Board 1** by clicking the expansion button to the left of the name (plus sign) as shown in Figure 2–15 on page 23. (The number and type of inputs and outputs depends on each board type is shown in Table 1–1 on page 6.)

Expand **VideoIn1** to see what video and audio inputs are available for this input source.

Click the **Expand All** and **Collapse All** buttons to quickly expand and collapse all the input sources in this pane.

Editing Area

The **Editing Area** is where you will determine the number and size of each video and/or audio source. The editing tools are immediately above and to the right of the **Editing Area**.

Layouts Pane

The **Layouts** pane provides ten stored layouts for you to use and/or modify. Alternatively, you can import or create a brand new layout and then save it to the **Layouts**.

The layout surrounded by the red box is the current layout. (Refer to Figure 2–15 on page 23.)

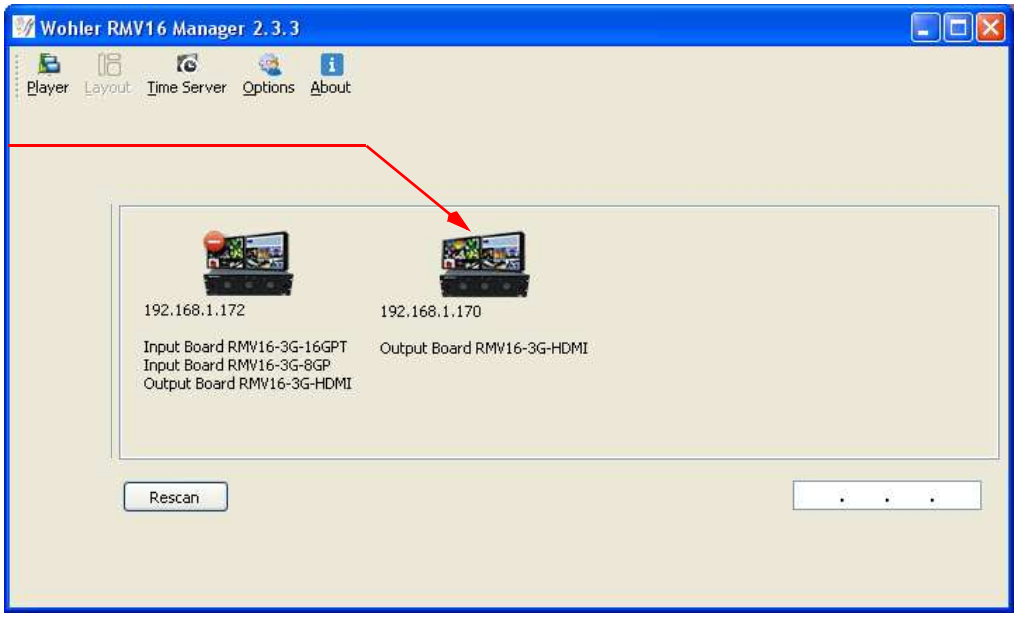
Creating a Sample Layout

In this section we'll walk you through all the steps necessary to create a new layout, save it, and then send it to the RMV16 Series multi-viewer to modify the content, size, and arrangement of A/V input sources. We assume you have already launched RMV16 Manager and have logged into the application.

1. Double-click the player for which you want to create a new layout.

Figure 2–16 RMV16 Manager Player Selection

Double-click the player you want to configure.

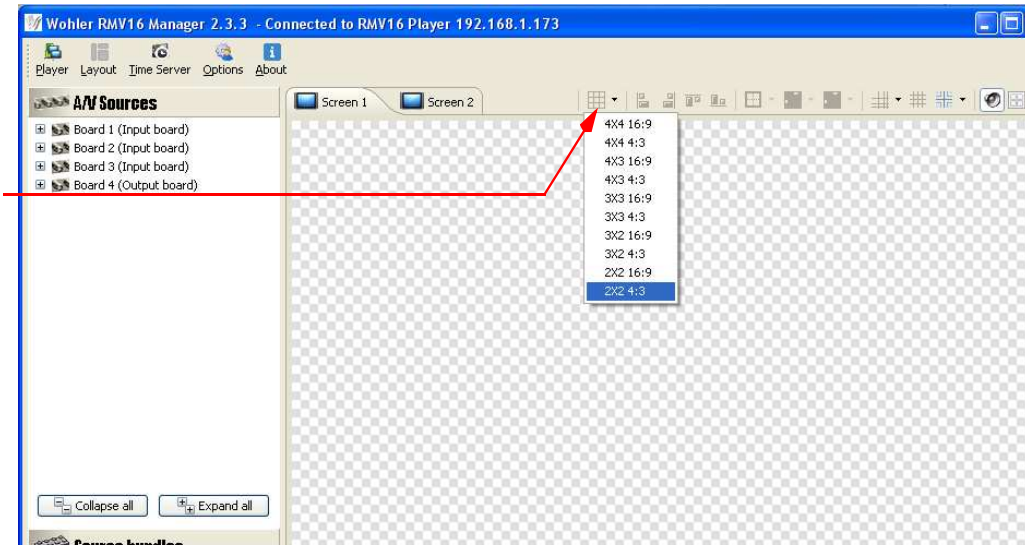


2. Resize the RMV16 Manager window as needed.

3. To display a basic list of options, click the **Array Layouts** tool (Figure 2–17 below). The first dimension identifies the number of rows and columns of viewports that will display on the A/V monitor, and the second set identifies the aspect ratio of each viewport.

Figure 2–17 RMV16 Manager Application Window

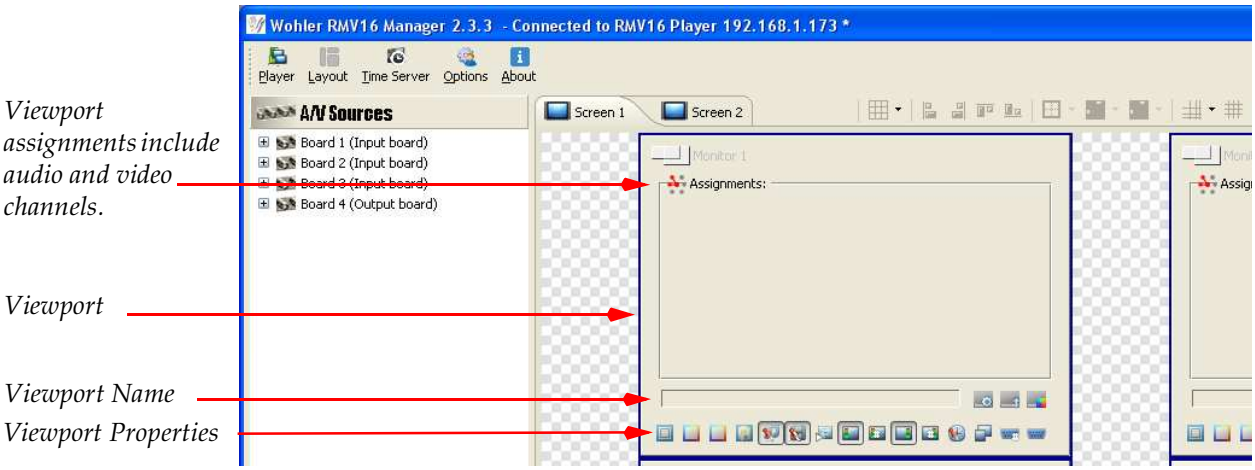
Click the drop down for the Array Layouts *tool to display the available options.*



4. When the drop down menu appears (2–17 on page 25) click **2X2 4:3**. Note that the **Editing Area** now contains four viewports: two across and two down.

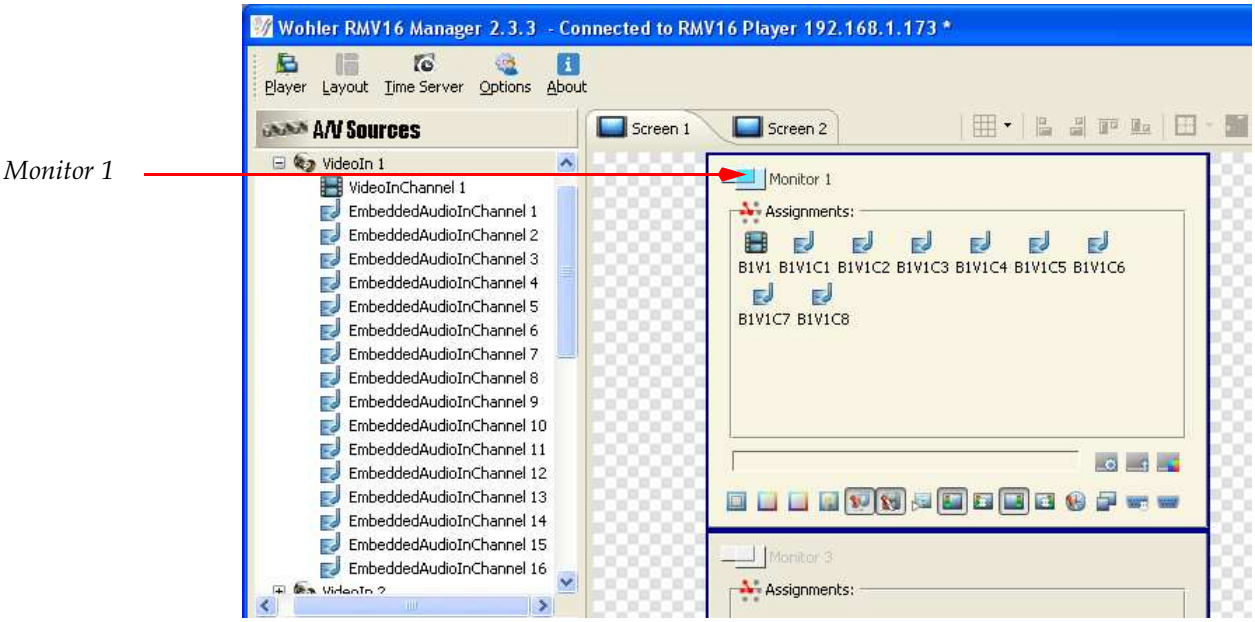
Note: [Ctrl] + [Z] provides one level of undo.

Figure 2–18 Adding Viewports



5. Now expand **Board 1 (Input Board)** in the **A/V Sources**. And then drag and drop **VideoIn1** to the **Monitor 1** viewport. Your application should look similar to the one in Figure 2–19 below.

Figure 2–19 Adding A/V Sources



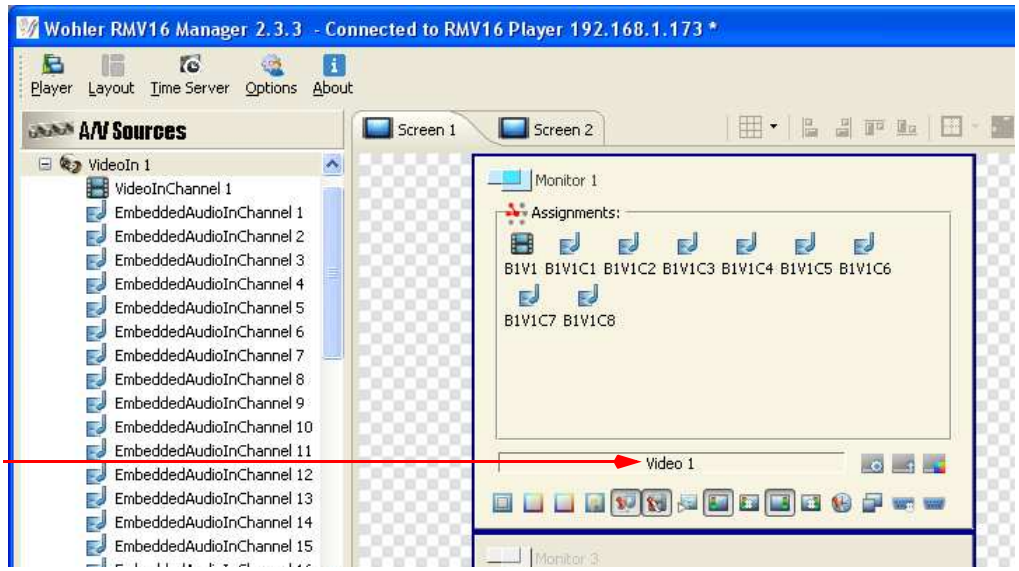
Note that the monitor viewport can only accept two groups (eight channels) of embedded audio; embedded channels can be from

any group. The first eight audio channels display when VideoIn (BNC icon) is dragged; no audio displays when the VideoInChannel (film icon) is dragged. Refer to Advanced Audio Sources on page 45 in next chapter to make very specific audio assignments.

6. Place your mouse cursor into the viewport name field and type Video 1 and then press Enter. See Figure 2–20 below.

Figure 2–20 Naming the Viewport

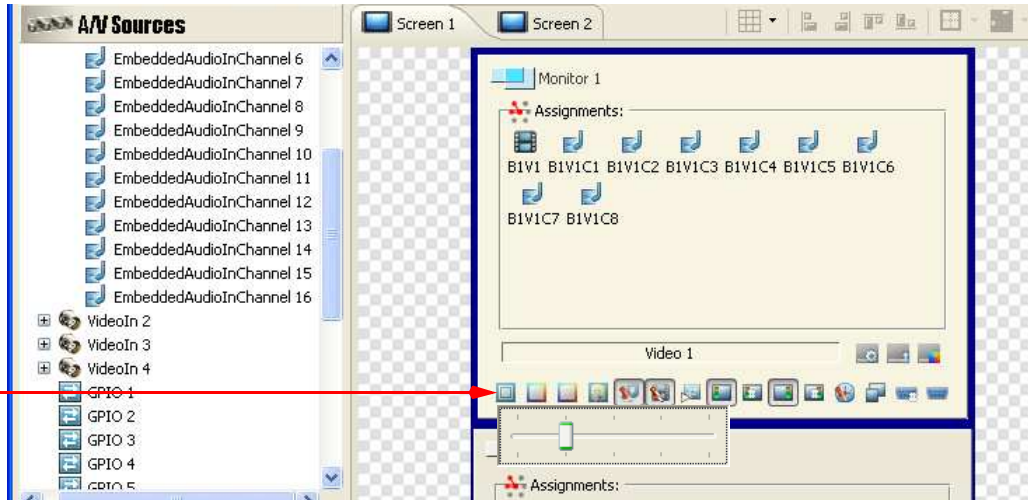
Rename the viewport Video 1.



7. Click on the viewport border property (Figure 2–21 below) and drag the slider to increase or decrease the border width. The tool tip will disappear momentarily.

Figure 2–21 Changing the Border Width

Click the viewport border property.



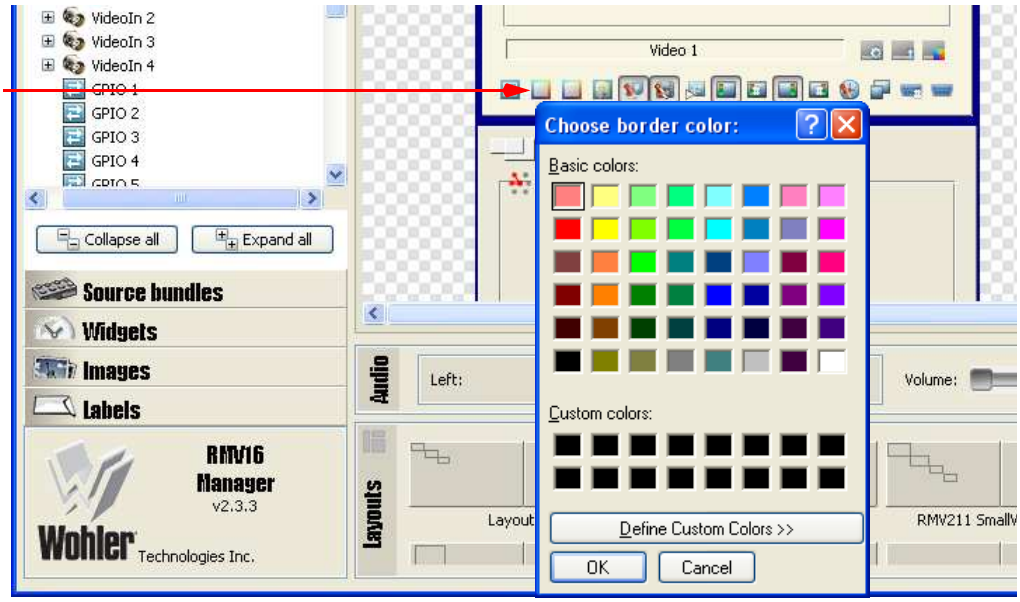
Note: you can also right click on any viewport or element in the **Editing Area** to display a properties dialog.

8. Click the viewport color property and select the color of your choice. Click **Define Custom Colors** to specify an exact RGB color definition.

   Note: Since the audio and video alarms and audio level meters are already set to display, this concludes the modifications we need to make to this viewport.

Figure 2–22 Changing the Border Color

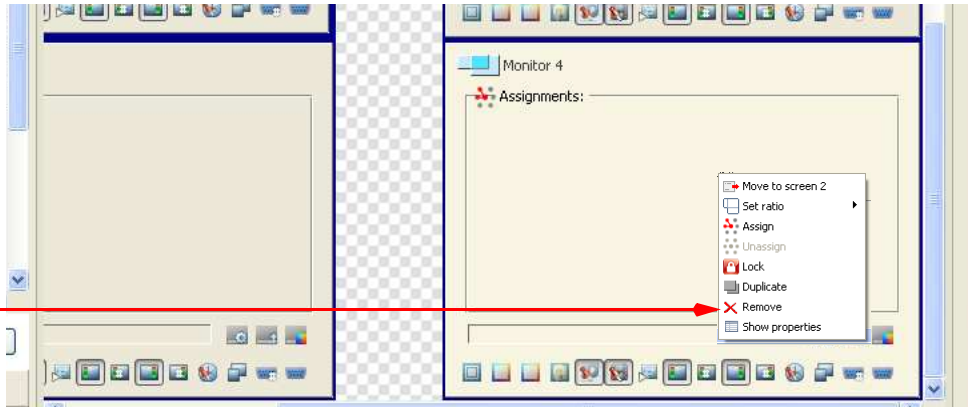
Click the viewport border color property and select the color of your choice.



9. Scroll over to the right side of the **Editing Area**, right-click anywhere within the **Monitor 4** viewport and click **Remove**.

Figure 2–23 Removing a Monitor

Right-click the viewport and then click **Remove**.



10. Scroll back to the left side of the **Editing Area** to perform the modifications for **Monitor 3**:

    A. Name **Monitor 3** to **Video 3**

    B. Change the border width and color.

    C. Click on **A/V Sources** and drag **VideoIn3** to the viewport.

11. Scroll to display **Monitor 2**.

    A. Name **Monitor 2** to **Video 2**.

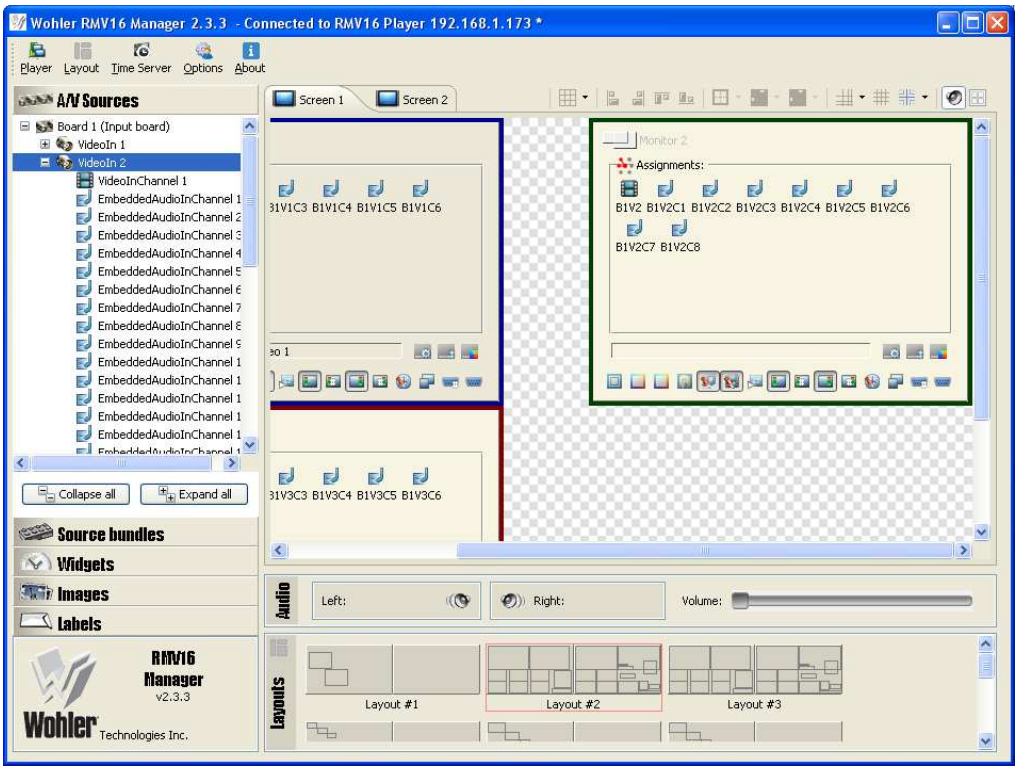
    B. Change the border as needed.

    C. Drag **VideoIn2** to the viewport.

Note: You cannot assign a source to more than one viewport.

Now your RMV16 Manager application should look something like the image in Figure 2–24 on page 29.

Figure 2–24 Completed Layout

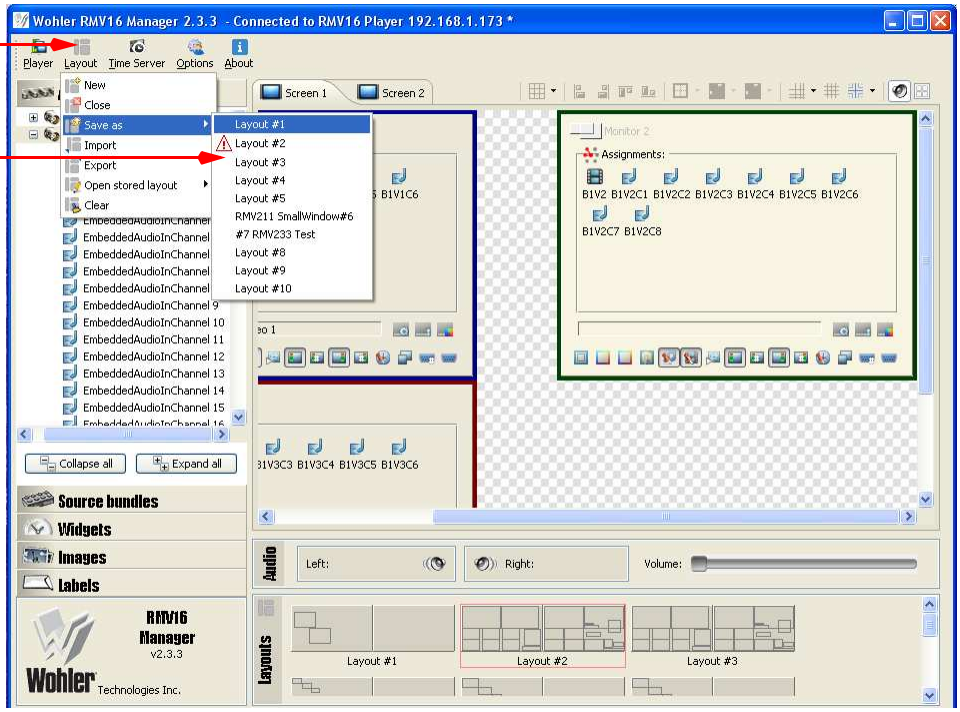


12. To save your changes click the **Layout** menu; click **Layout #1**.

Figure 2–25 Saving the Layout

Click the **Layout** *menu.*

Save your changes to Layout #1.

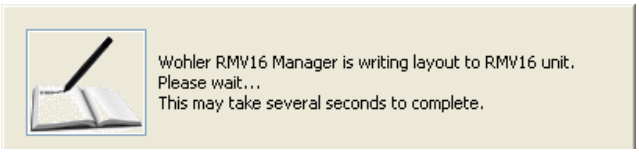


If the layout you select already has at least one viewport, then you will see message shown in Figure 2–26 below. Click Yes to overwrite or No to go back and select another layout. In our example, we opted to overwrite **Layout #1.**

Figure 2–26 Saving the Layout

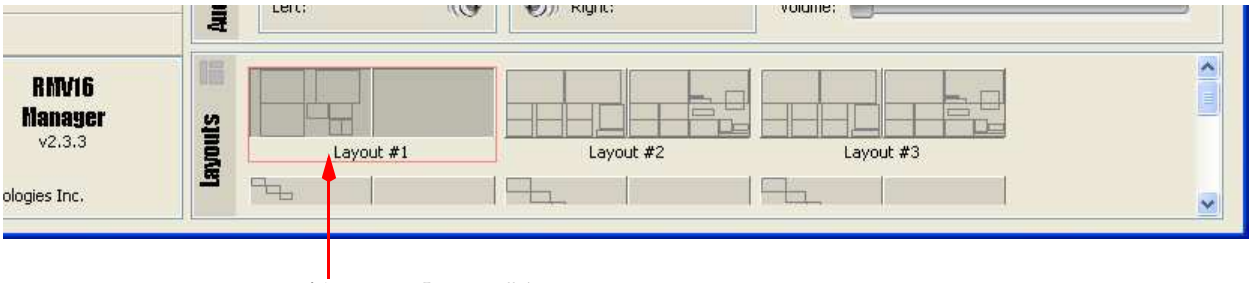
The RMV16 Manager may take a few seconds to save the file. Refer to Figure 2–27 on page 31.

Figure 2–27 Saving the Layout



Notice that now the thumbnail for **Layout #1** mimics the layout you just created. As you can see from the layout, we only made changes to **Screen 1**. You can do the same types of changes for **Screen 2**.

Figure 2–28 Verifying the Save



Your new Layout #1.

13. Finally, right-click **Layout #1** and click **Set as Displayed** to transfer your new layout to the A/V monitor.

    Note: In this case, since the layout we saved to is the active layout, **Set as displayed** will be disabled. Merely saving your changes to the layout will forward them to your A/V monitor.

14. Look at the A/V monitor to verify that it has accepted your changes.

    Note: A black monitoring area has no video signal and no alarms.

    A white monitoring area has no source assigned.

CHAPTER 3
Additional Software Functions

Introduction

Overview

This chapter provides additional procedures for modifying and customizing the RMV16 player display.

Note: We assume you have executed all the instructions from Chapter 2 and that you still have the RMV16 Manager open. If that is not the case, execute all the instructions from Running the RMV16 Software on page 19 through the end of Selecting a Player on page 22 before beginning the instructions in this chapter.

Topics

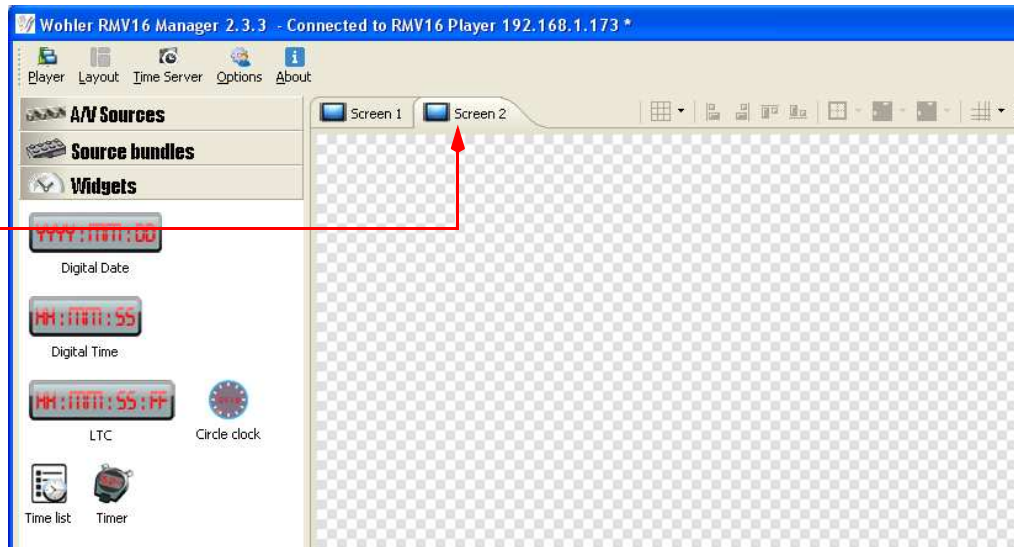
Using the Properties Dialog

For this section, we'll work on **Screen 2**.

1. Click on the **Screen 2** tab to start a new layout. See Figure 3–29 below.

Figure 3–29 New Layout Screen for Screen 2

Click the ***Screen 2*** *Tab*

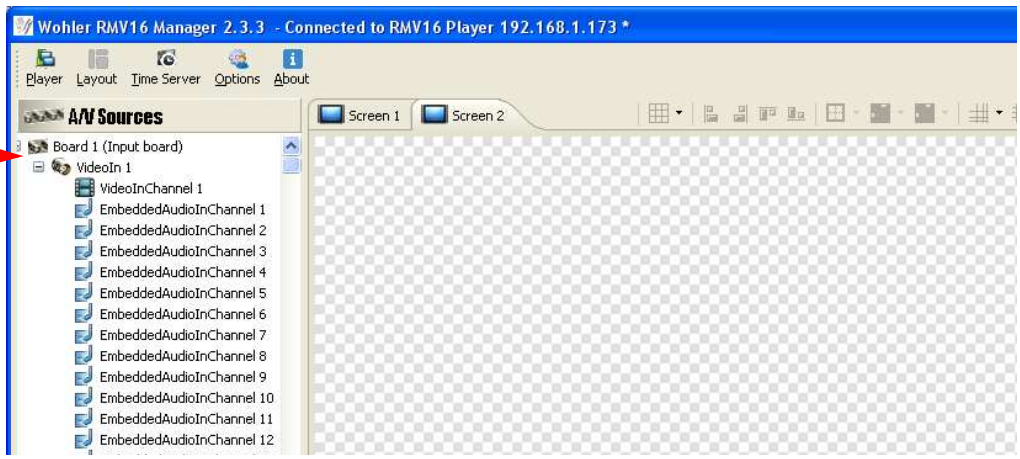


2. Click **Expand All** at the bottom of the **A/V Sources** pane.

3. Scroll down to another video input. In our example we're using **Board 4 Video Input 1** as shown in Figure 3–30 below.

Figure 3–30 New Video Input Selection

Select a new video input.



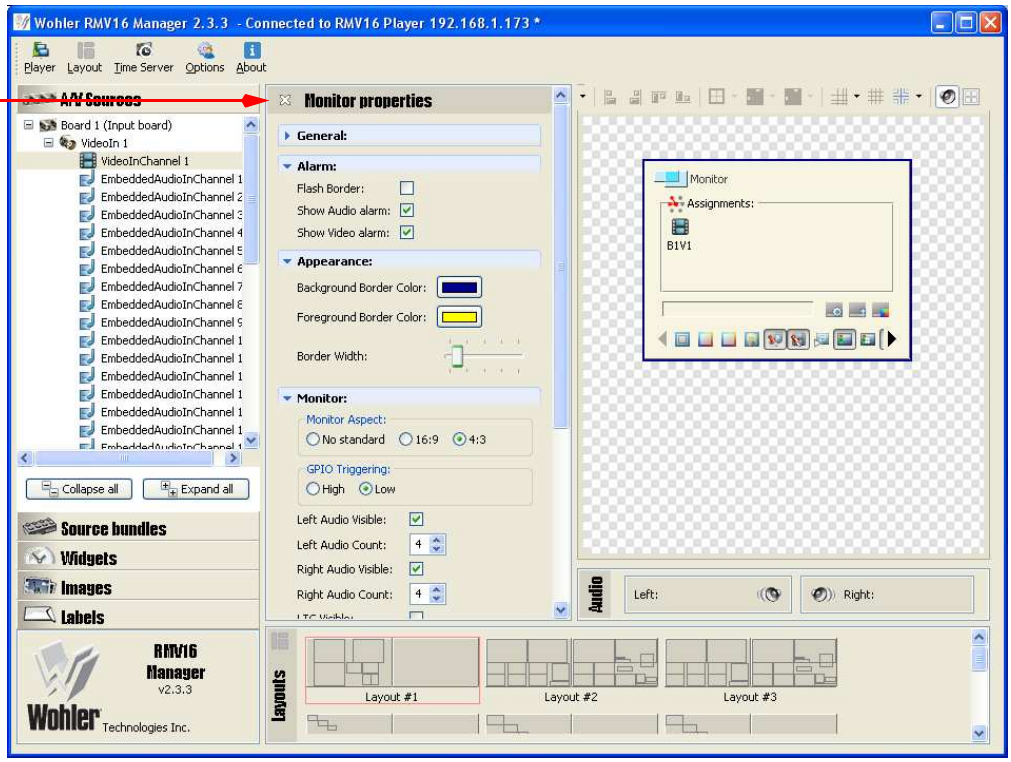
4. Click and drag **VideoInChannel1** to the **Editing Area**.

5. Double-click in upper half of viewport or right-click the viewport to display the pop-up menu and select **Show Properties**.

6. Depending on your computer monitor's size, it may be necessary to click and drag the **Monitor Properties** pane to the right to expand the window until the bottom scroll bar disappears.

Figure 3–31 Monitor Properties Dialog

Properties panel

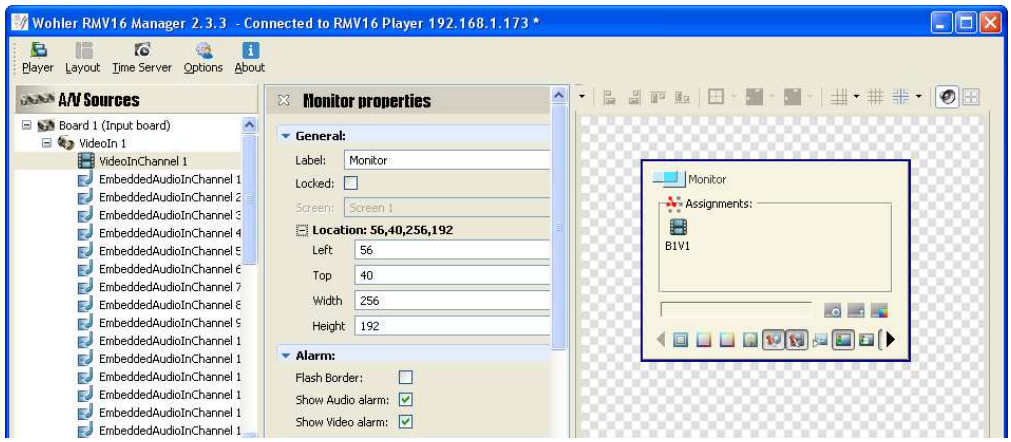


7. As you can see from the items in the **Monitor Properties** pane (Figure 3–31) this window provides alternate methods of modifying the display of the viewport.

8. In the **Monitor Properties** pane, click the **General** section header at the top to expand this section.

9. In the **Monitor Properties** pane, click the plus sign (+) to expand the **Location** parameters.

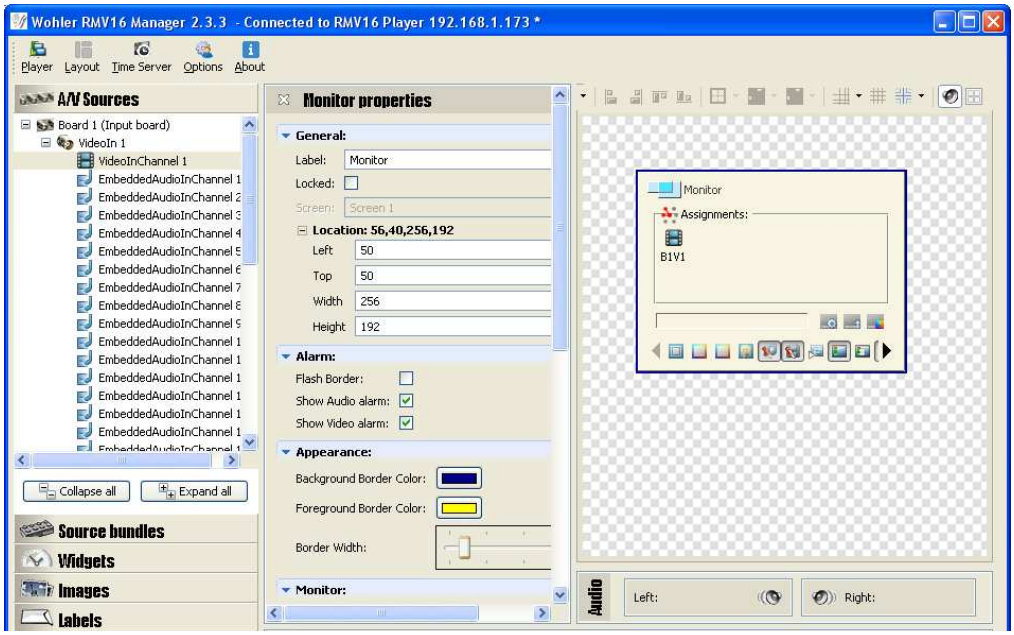
Figure 3–32 Location Parameters



The **Left** and **Top** values specific in pixels the location of the top left corner. The **Width** and **Height** values are absolute values added to the **Left** or **Top** values, respectively to get the exact location of the bottom right corner. Since the multiviewer output display has more pixels than the Manager's **Editing Area**, these pixel values are proportioned to the available editing window (usually 50%).

10. Type 50 into the **Left** field and 50 into the **Top** field. The viewport should now be in full view as shown in Figure 3–33 on page 36.

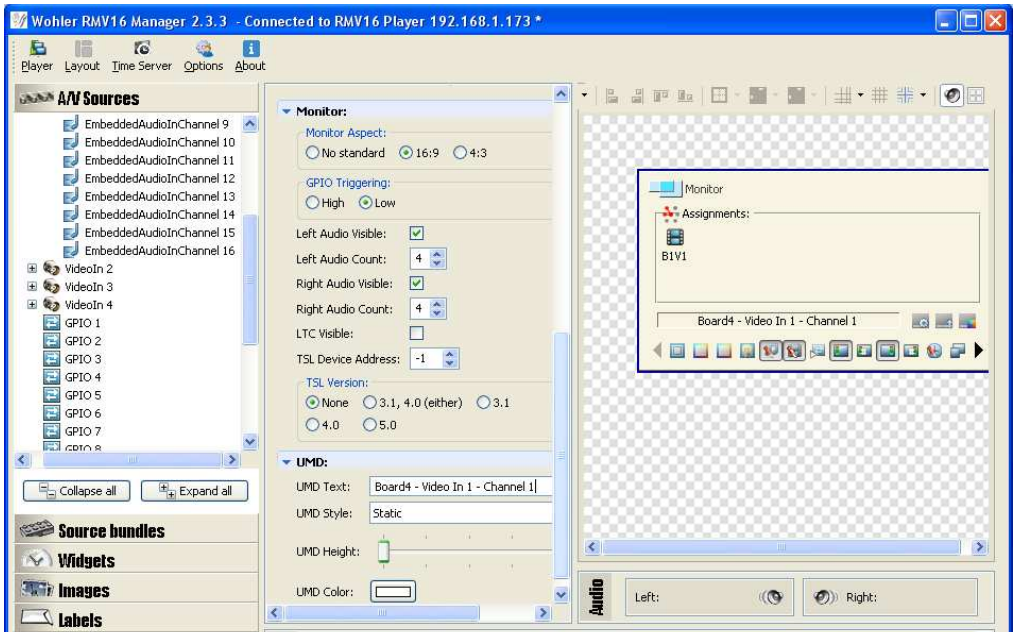
Figure 3–33 Location Parameters



11. In the **UMD** (under monitor display) field, type Board4 - Video In 1 - Channel 1 or whatever is appropriate for your viewport followed by the **Enter** key. Note that the text automatically centers itself in the viewport.

12. In the **Monitor Aspect** area, click **16:9** and notice that the viewport expands horizontally to accommodate a 16:9 video signal. Also note that the **Width** field now has a new value. Your **Editing Area** should now look similar to the one in Figure 3–34 below.

Figure 3–34 UMD Text and Monitor Aspect



13. Before closing the **Monitor Properties** dialog, click **Locked** at the top of the dialog to prevent any changes in size or location to the viewport. If you need to make further changes at a later time, you can always uncheck the **Locked** box and then alter the viewport as needed.

14. You can close the **Monitor Properties** dialog in a variety of ways: click the **X** at the top right of the dialog, click in empty edit area space, or open another viewport's **Properties**.

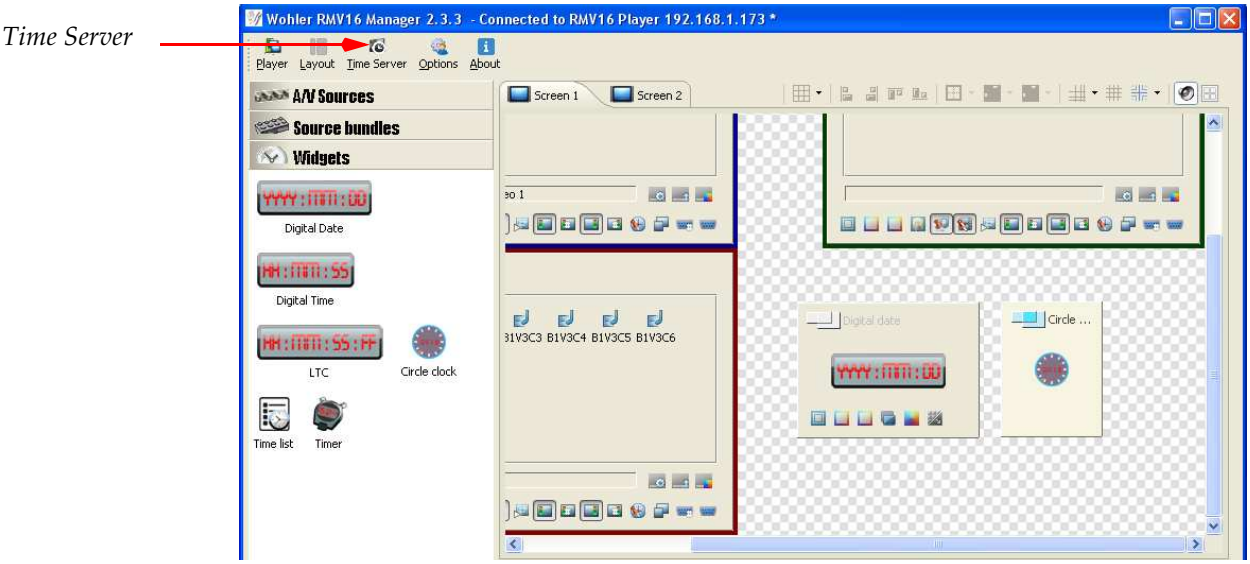
Clocks and Timers

Date and Time

1. Scroll to the bottom right corner of the **Editing Area**. Then click on **Widgets** in the left pane.

2. Drag the date widget to the free space and then move it to the location of your choice. Repeat with either of the clocks.

Figure 3–35 Adding the Date and Time

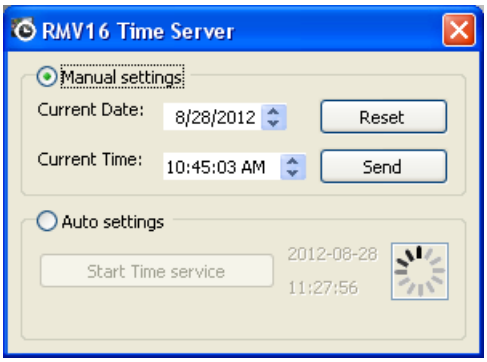


3. To set the date, click the **Time Server** menu at the top left of the application window. Note that no dialog displays. Instead, left-click (once) on the **Time Server** icon in the task bar of your desktop (bottom right corner).

Figure 3–36 Time-Server Task Bar

4. Once the **RMV16 Time Server** dialog displays, select either **Manual settings** to type in a new date and time for a different time zone, or **Auto settings** to retain the date and time set on your computer.

Figure 3–37 Setting the Date and Time



5. Click **Send** and then close the dialog.

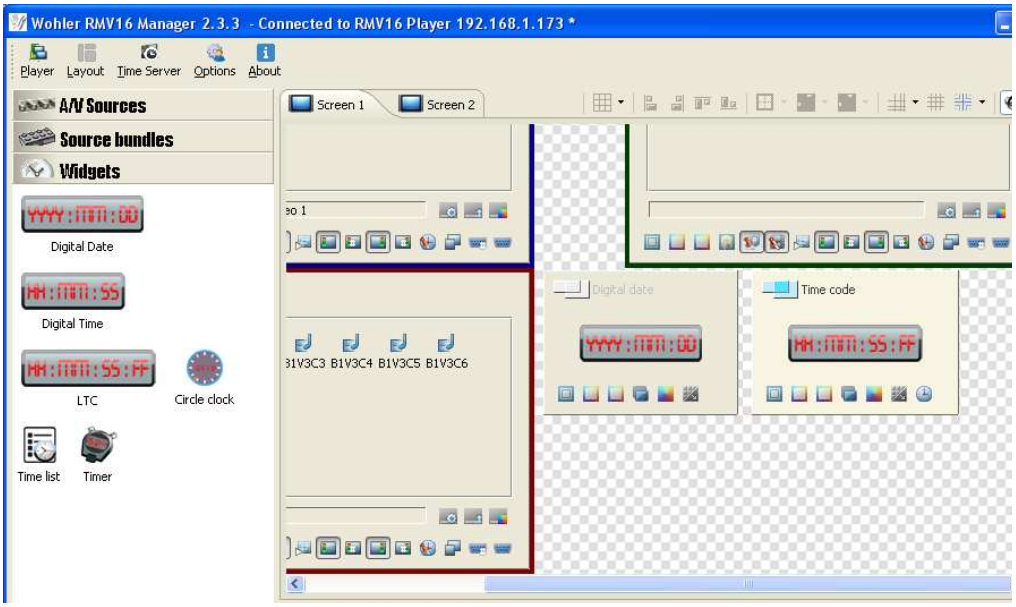
LTC (Linear Time Code)

1. For the sake of space, right click the clock you added and click **Remove**.

2. Drag the **Date** view port so that it is touching the lower edge of the **Monitor 2** viewport to create enough space to add an **LTC**.

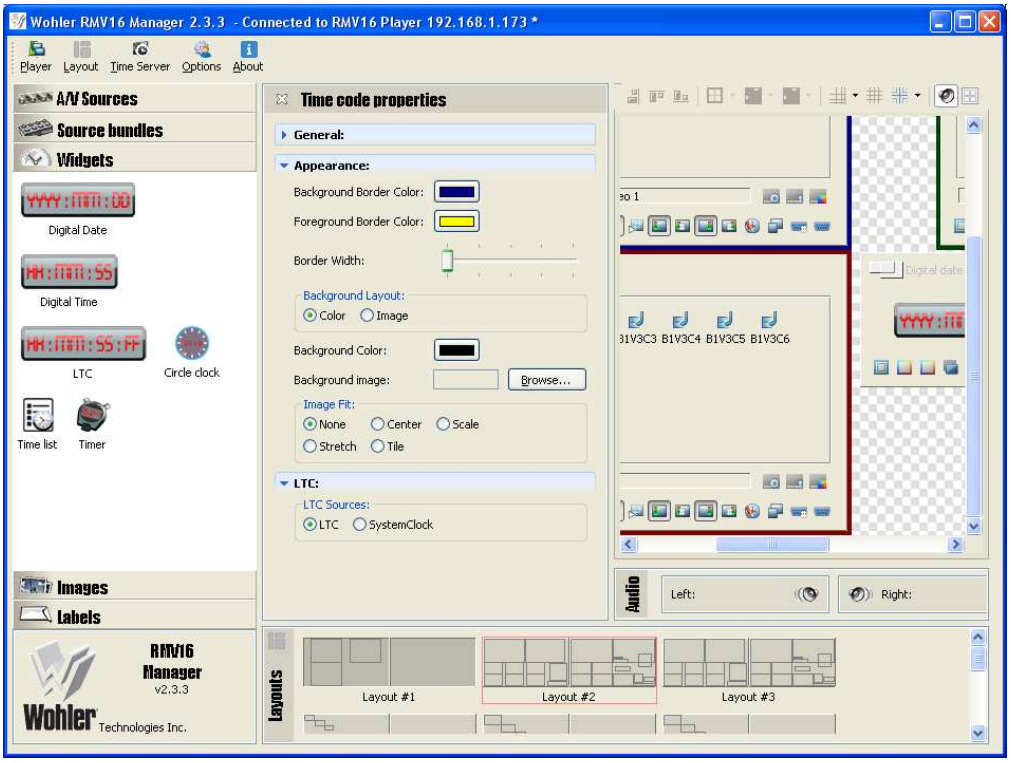
3. From the **Widgets** pane, click and drag the **LTC** to the right of the **Date** viewport.

Figure 3–38 LTC Added



4. Right-click the **LTC** to display the **Properties** dialog. Resize the **Properties** pane as needed.

Figure 3–39 LTC Properties



5. In the **LTC** section at the bottom of the **Properties** dialog, click to select either **LTC** (time code from the video program) or **System Clock** (from the Timer Server dialog Figure 3–37 on page 39).

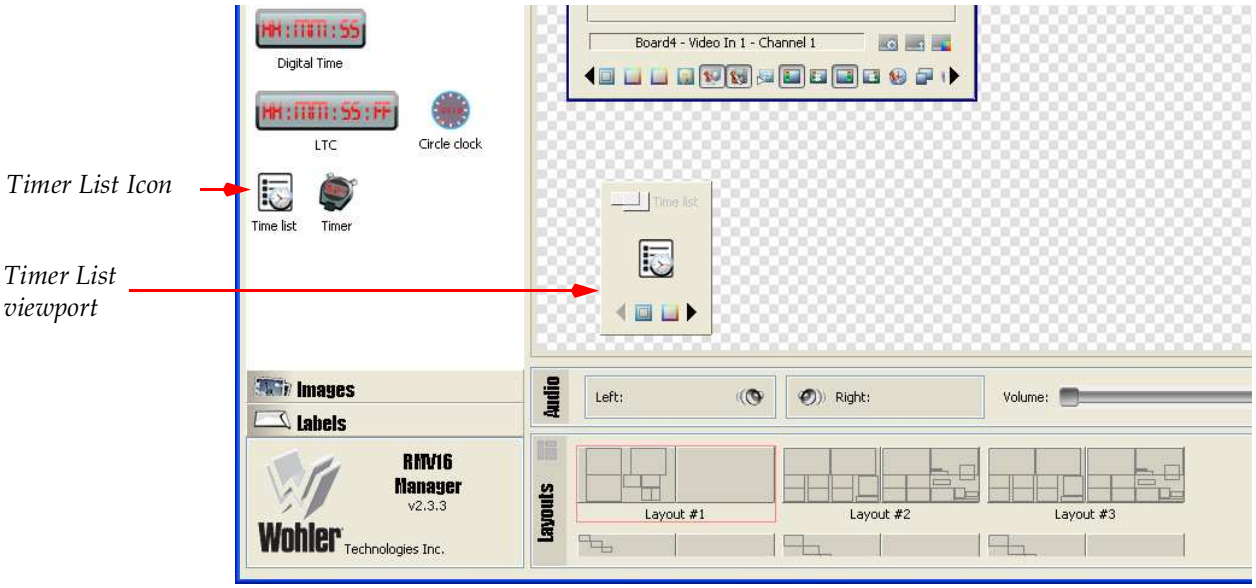
Note: You can have only one LTC input per player group, and any 16GPT card in the group can be used for LTC.

Timers

You can now display a timer to count up or down to your viewer.

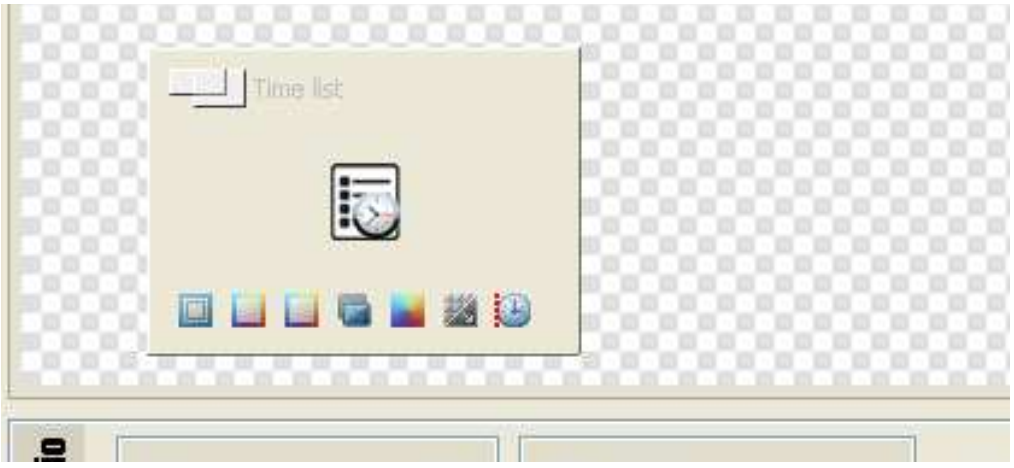
1. Click and drag the **Time List** to the work area (Figure 3–40 on page 41).

Figure 3–40 Time List



2. After dragging the **Timer List** to the work area, click and drag the viewport so that all of the option icons at the bottom display (Figure 3–41 below)

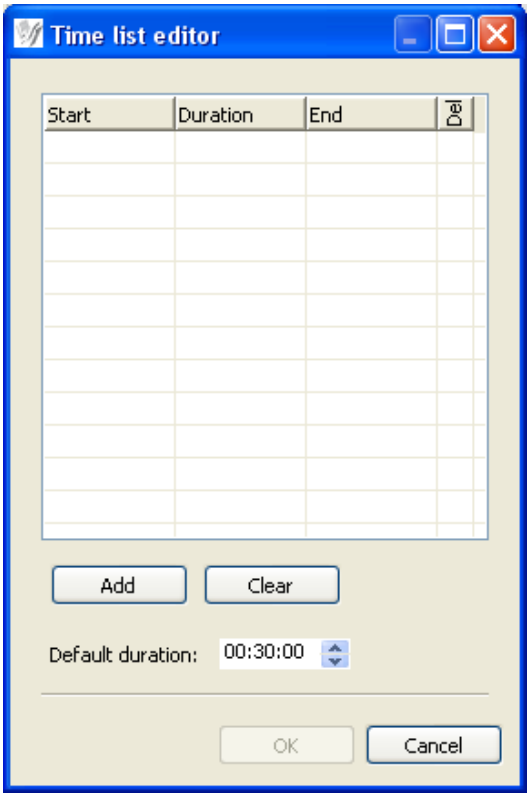
Figure 3–41 Add a Timer



Note: Timers are based on your A/V hardware, not on the PC.

3. Double-click the **Time List** option icon at the far right, to display the **Time list editor** as shown on Figure 3–42 on page 42.

Figure 3–42 Time List Editor



4. Click **Add**. The RMV16 Manager will automatically insert the current time as the start time, a default 30-minute duration, and an end time 30 minutes from now.

5. Click **OK** to accept this time and close the **Time list editor**.

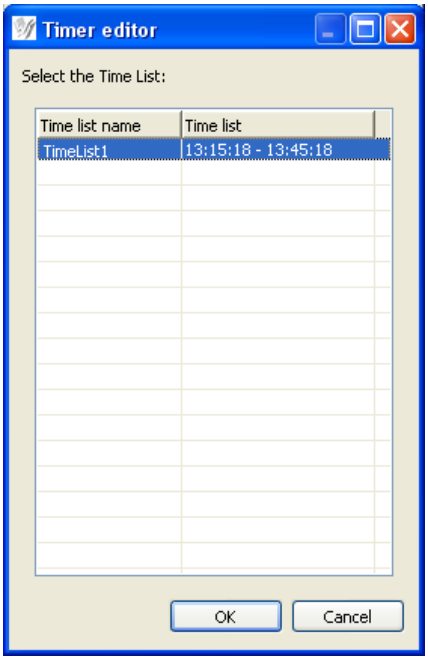
6. Now click and drag the **Timer** to the work area and expand its viewport the same way you did for the **Timer List** (Figure 3–43 below).

Figure 3–43 Timer

7. Double-click the far right icon.

8. When the **Timer editor** dialog appears, click the timer from the list that you want to assign to this timer, and then click **OK**.

Figure 3–44 Timer editor



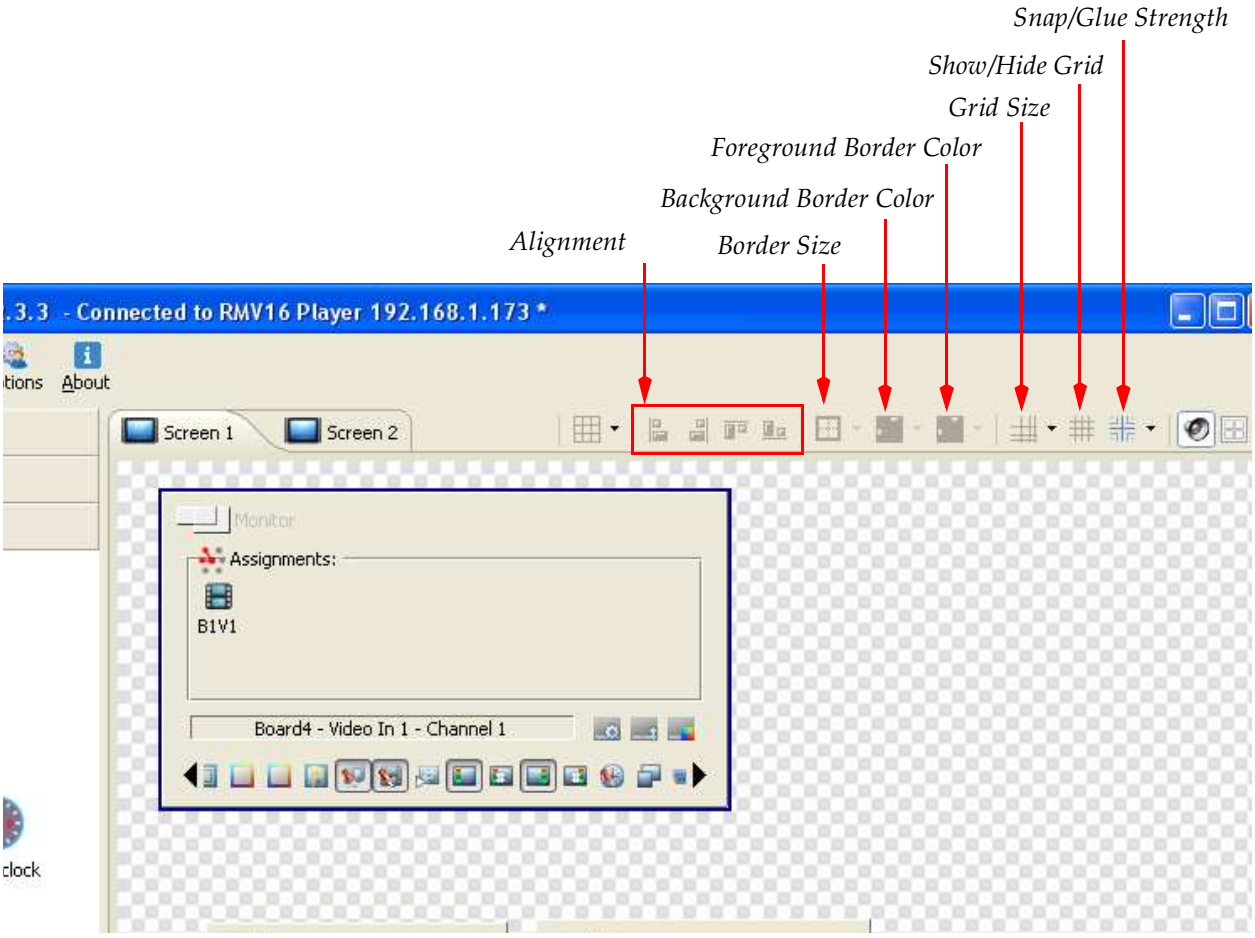
Modifying Multiple Viewports

We have already seen how to modify the border width and color of an individual viewport. In this section we will see how to select multiple viewports and modify all of their borders simultaneously.

1. Add another video viewport to the **Editing Area**.

2. Hold down the [Ctrl] key while left-clicking once on each viewport to select them both. Notice that the **Editor Tools** at the top of the application window are now enabled as shown in Figure 3–45 below.

Figure 3–45 Editor Tools



3. Click the **Left Alignment** icon to move the lower viewport to the left and align it with the top one. The other viewports will be aligned to the first viewport selected.

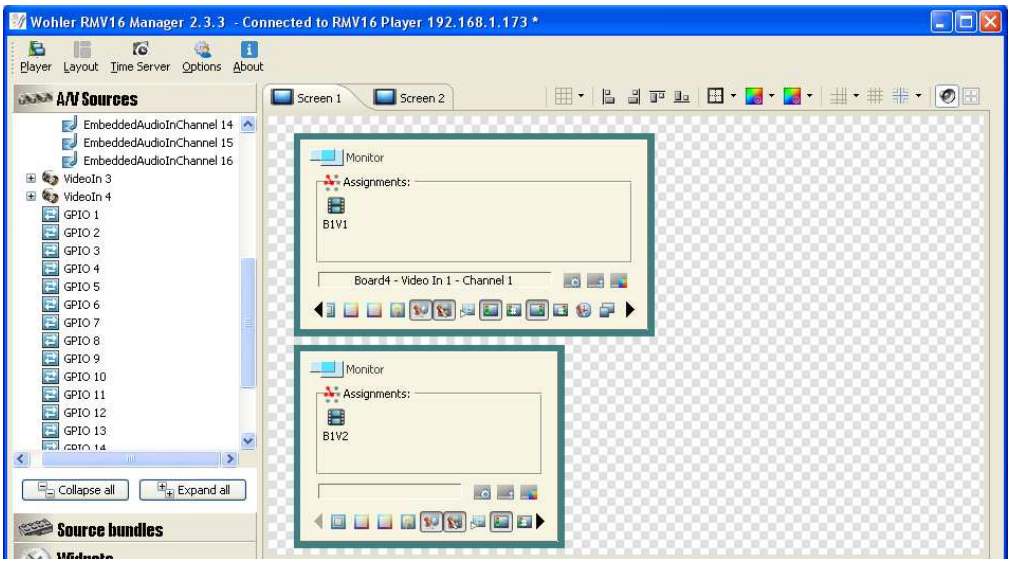
4. Click the **Border Width** icon and move the slider to thicken the border of both viewports.

5. Click the **Border Color** icon to select an alternate color for both borders.

6. Click the **Magnetization Strength** (a.k.a. snap and glue) to either strengthen or weaken the degree to which the system will pull items in line with the grid.

7. Your **Editing Area** should now look similar to the one in Figure 3–46 on page 45

Figure 3–46 Editor Tools



Advanced Audio Sources

The RMV16 Manager displays up to eight audio level meters within each video monitor window.

An audio group can also be used to display additional channels beyond the eight within the video monitor.

Occasionally, you may want to add an alternate audio source, such as an announcer that has not already been incorporated into the video stream.

In this section we'll add audio level meters to the **Editing Area** and use the **Source Assignments** dialog to fine-tune our adjustments.

1. Right-click the lower video viewport and select **Remove**.

2. If you have not already done so, expand one of the input boards in the **A/V Sources** pane, so that you can see the analog audio inputs. In our example, we'll be using **Board 3 (Input Board)**.

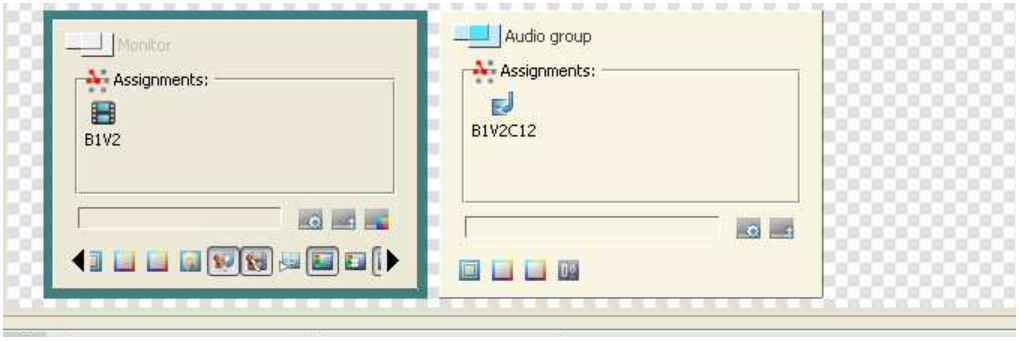
3. From the **A/V Sources** pane, click and drag **AudioIn Channel 1** to an empty area to the right of the video viewport in the **Editing Area**.

Figure 3–47 Selecting the Viewport Type

4. When the viewport selection window displays, click on **Audio group viewport**.

5. Click and drag the audio viewport to the right of the video viewport. Your screen should look similar to the one shown in Figure 3–48 below.

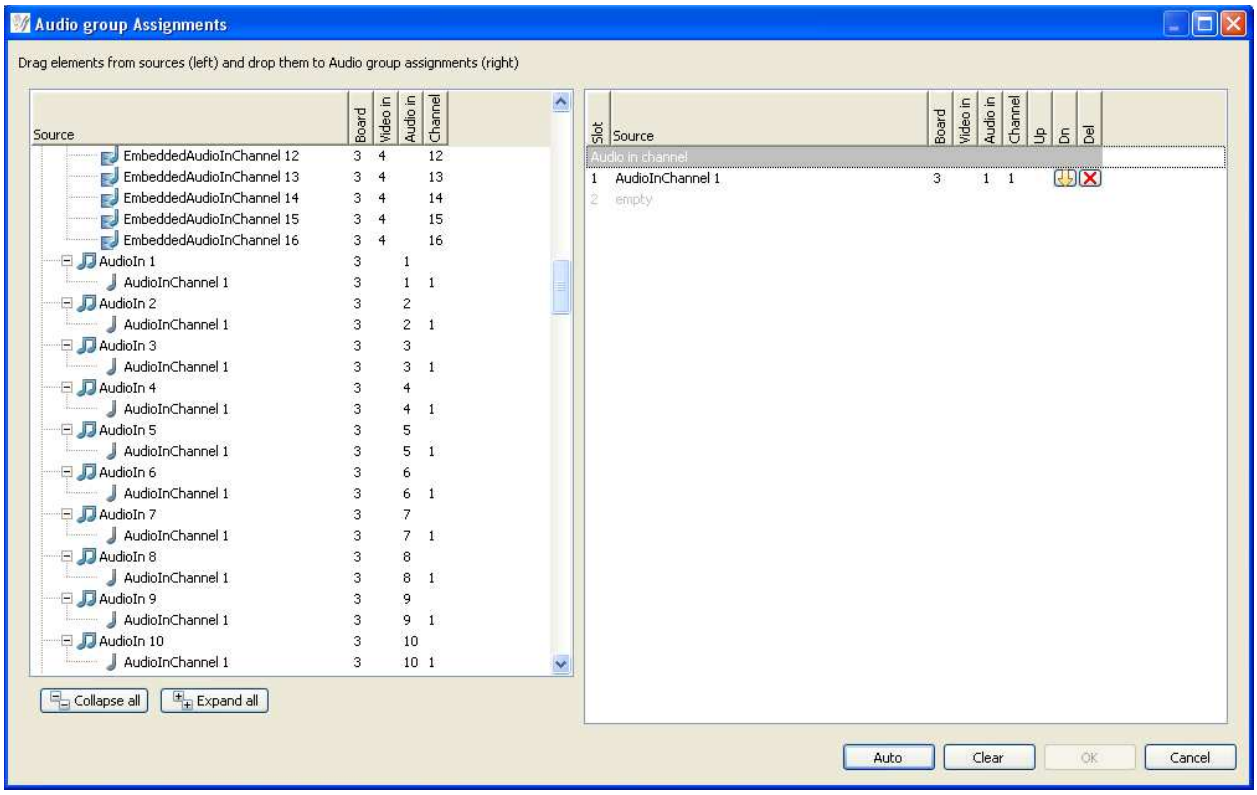
Figure 3–48 Adding an Audio Viewport



6. Right-click the audio viewport and select **Assign**.

7. As with **Monitor Assignments**, when the **Audio Group Assignments** dialog displays, scroll down to display the analog audio inputs in the **Board 3 (Input board)** list.

Figure 3–49 Audio Group Assignments Dialog

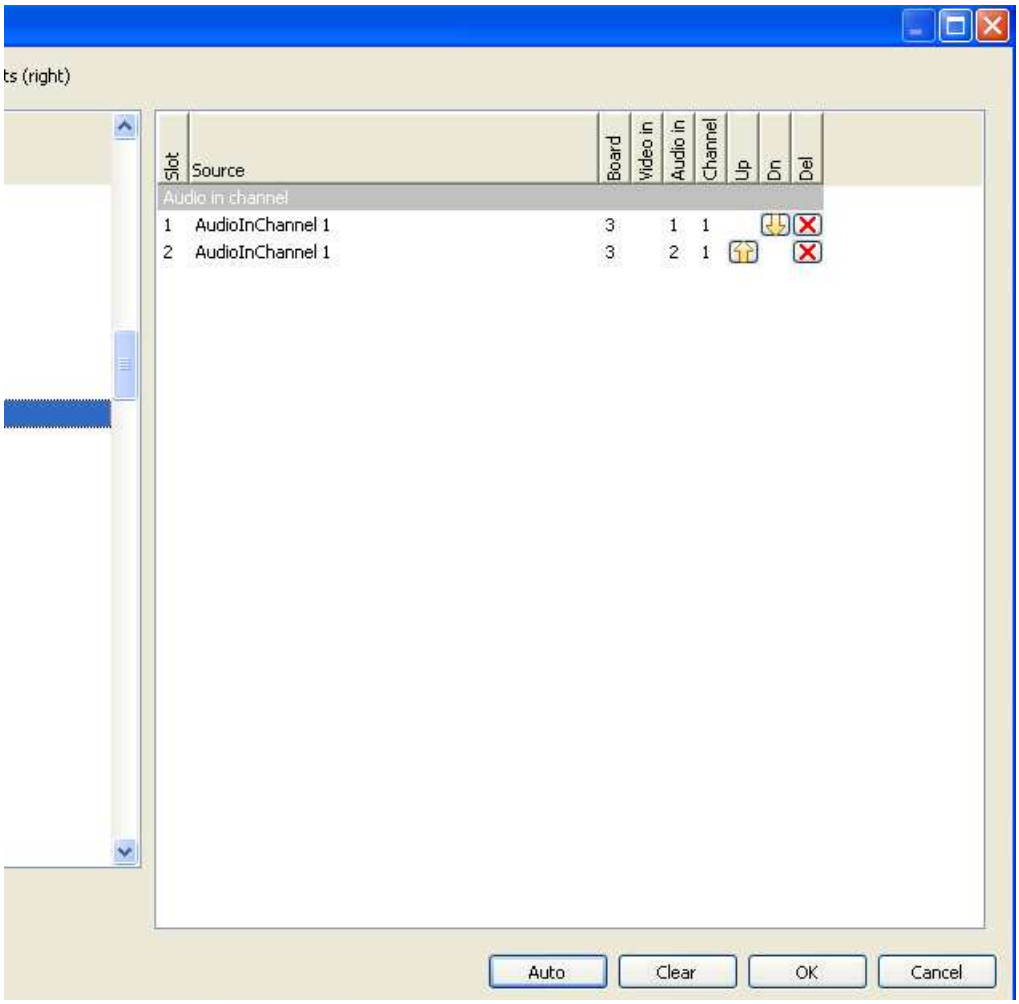


The **Audio Group Assignments** dialog (Figure 3–49 above) allows you to completely customize your audio level meters. In the left pane are all the **A/V Sources** and in the right pane, you can determine what audio signal you want to appear in any meter position.

8. Click and drag **AudioInChannel 2** to the right where it shows **Empty** in light gray. Your **Audio Group Assignments** dialog should now look similar to the one in Figure 3–50 on page 48.

   Note: If the **OK** button is disabled, click **Up** or **Dn** to enable the initial change.

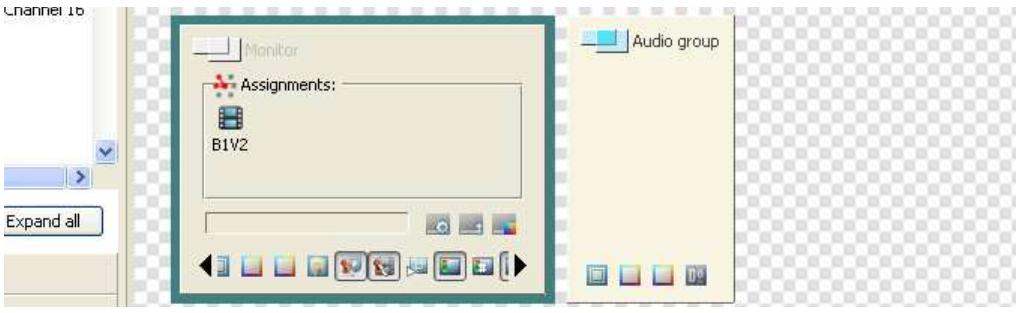
Figure 3–50 Adding Stereo Audio



9. Click **OK** to close the dialog.

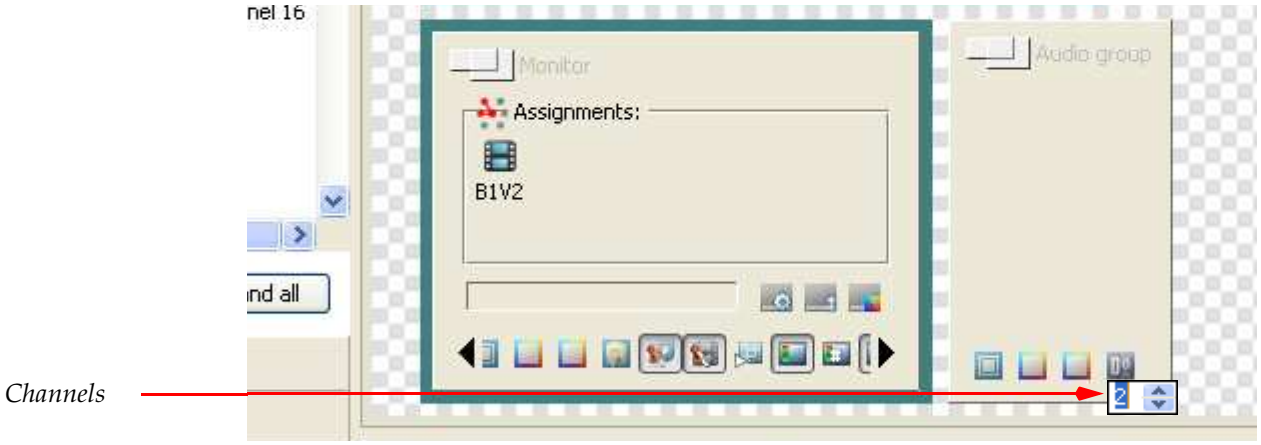
10. When the RMV16 Manager application window reappears, resize the audio viewport so that the level meters will be much taller than they are wide as shown in Figure 3–51 below.

Figure 3–51 Resizing the Audio Viewport



11. Click on the **Channel Numbers** icon to display the number of audio channels in this viewport as shown in Figure 3–52 below.

Figure 3–52 Displaying the Number of Audio Channels



12. Enter numbers directly with the keyboard, or use the up and down arrows to set the group channel count from 1 to 50. Click the icon again to close the display.

Note: Audio group UMD entries are left-justified.

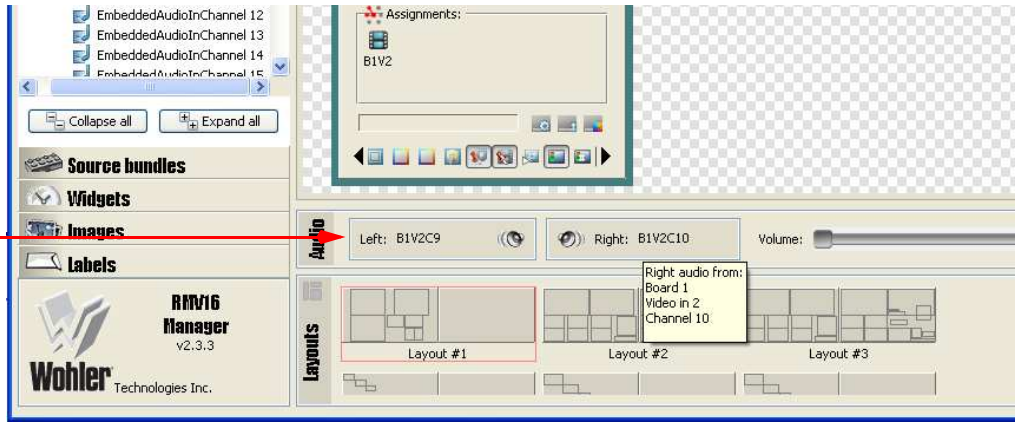
Audio Out

To direct audio to the left and right speakers, click and drag an audio channel to the left speaker and then click and drag another channel to the right speaker.

Note: Both channels must be from the same source and the system will handle only one channel per speaker.

Important: To undo the channel in one of the speakers, you must click and drag a new channel. You cannot remove a channel once you have added it.

Figure 3–53 Audio Out



Left and Right Channels

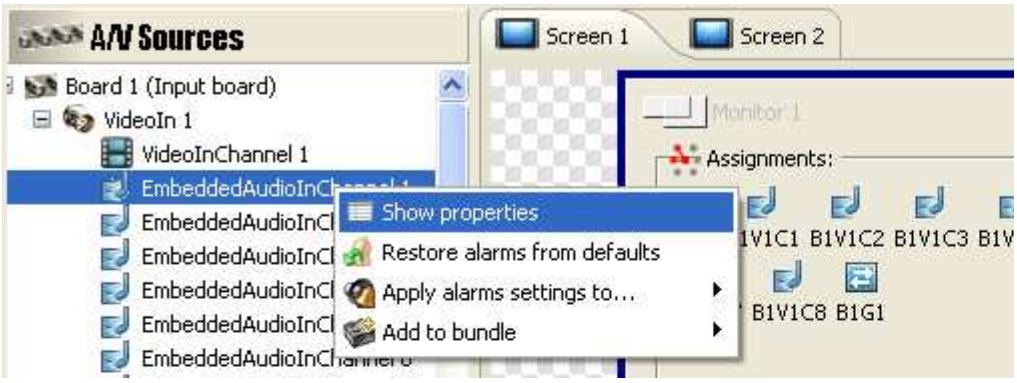
13. Now click and drag the **Volume** slider to adjust the volume.

Alarms and Adjustments

With this release, the RMV16 Manager now supports both video and audio alarms.

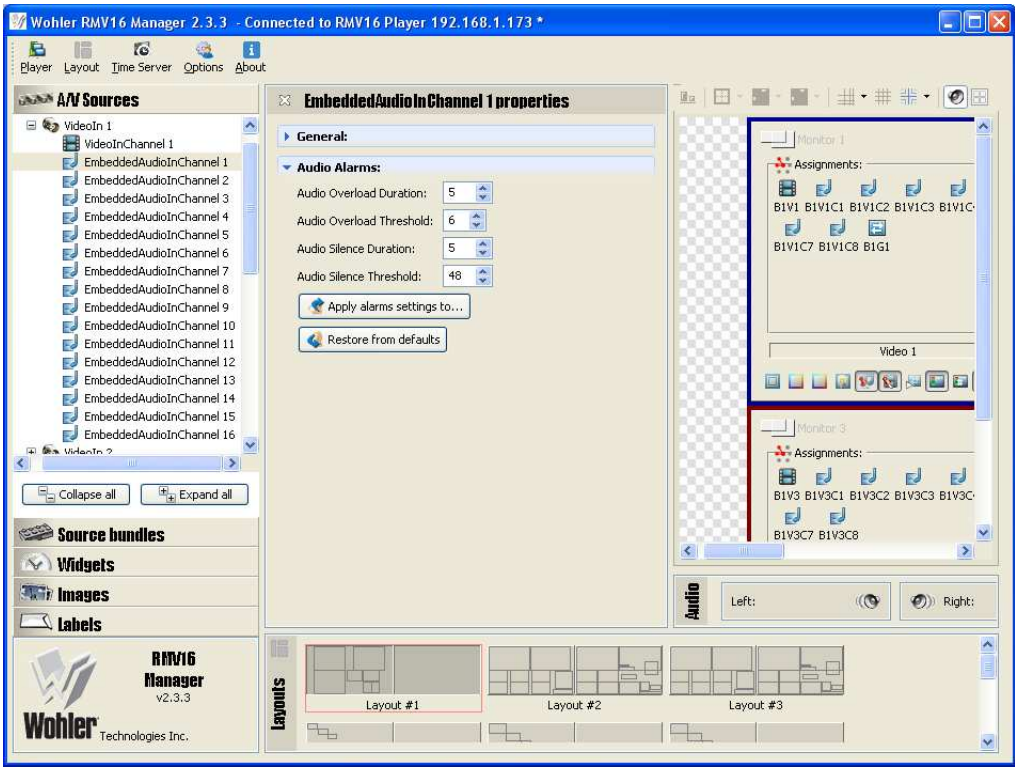
Note: SDI audio alarms are set per each 4-channel group. Analog audio alarms are set for each channel.

Figure 3–54 Displaying Audio Alarm



1. Referring to the image in Figure 3–54 on page 50, right-click one of the audio channels in any of the **VideoIns** and click **Show Properties**.

Figure 3–55 Displaying Audio Alarm



2. In each of the **Duration** fields, use either the arrow buttons, or type the number of seconds you want to enter for the alarm to stay on the screen.

3. In each of the **Threshold** fields, select the values the same way.

4. Click **Apply alarms settings to...** to copy to other channels, groups, or boards.

5. Close the **Properties** dialog.

Note: Analog audio channel properties allow you to adjust the input gain.

Video Alarms and image **Adjustments** are made in a similar manner by opening the **VideoInChannel** properties.

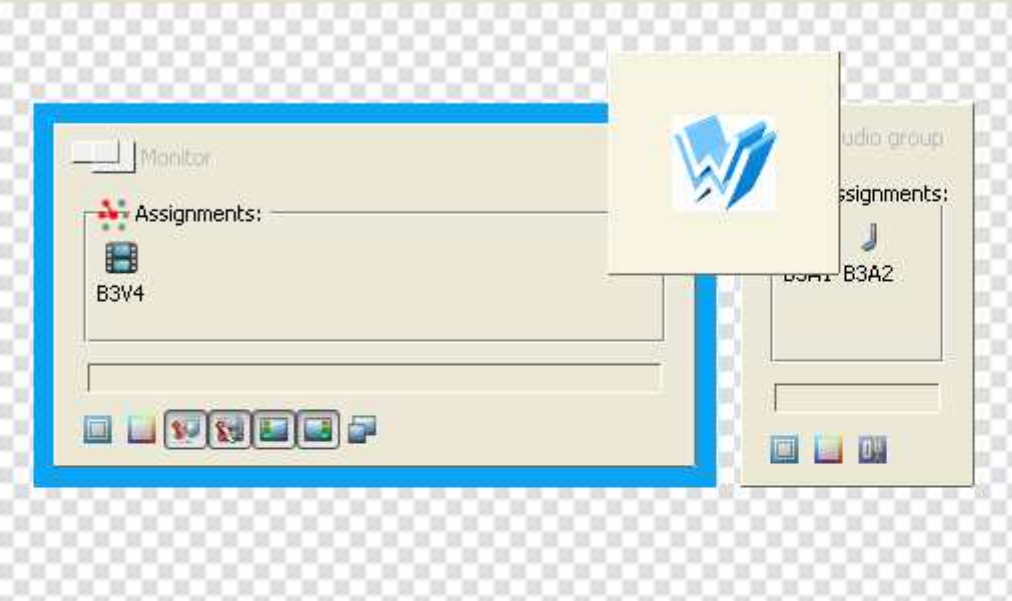
Adding Images and Labels

In this section we will add an image to the **Editing Area** and a label above the audio viewport.

1. In the left pane, click **Images**.

2. Drag one of the Wohler logo icons to an empty spot of the **Editing Area**. Your screen should now look similar to the one shown in 3–56 on page 52.

Figure 3–56 Adding an Image



Note that you can move the image so that it overlays the viewport and become semi-transparent on the video screen. This is especially useful for adding the channel's logo for further identification of the source.

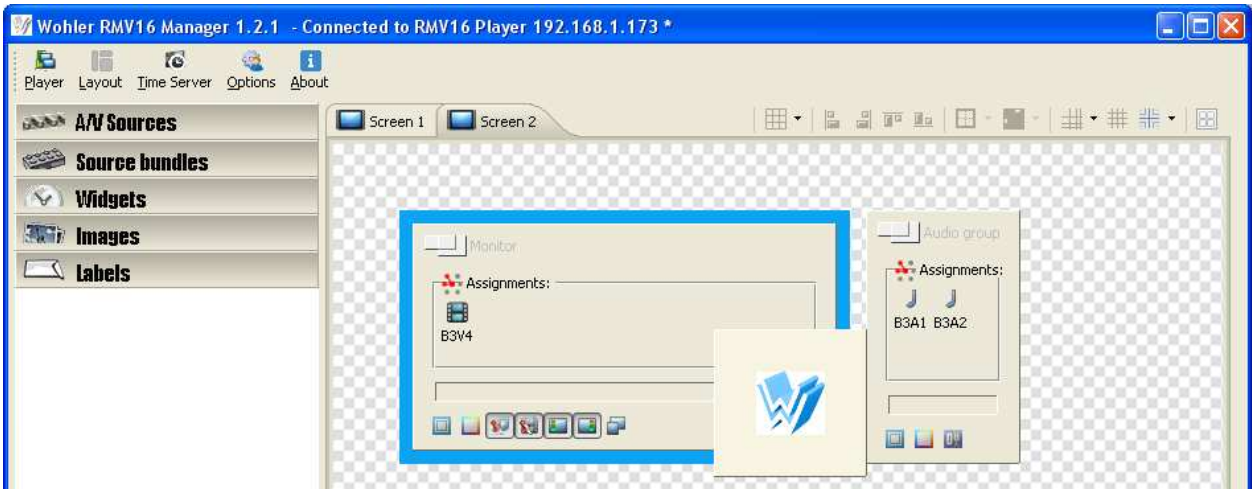
And, as with any viewport, right-clicking to display the pop-up menu and selecting **Properties,** allows you to display this object's **Picture Properties**.

- **Image Fit** selections control picture appearance when the viewport differs from the image size.
- **View Image** opens the PC's image editor for more information and editing options.

- **Move to Screen** not only shifts the viewport to the other screen, but it also places it above all others. This technique is useful for bringing an element from the back to the front position.

3. In the left pane, click on **Labels**. Refer to Figure 3–57 on page 53.

Figure 3–57 Adding a Label

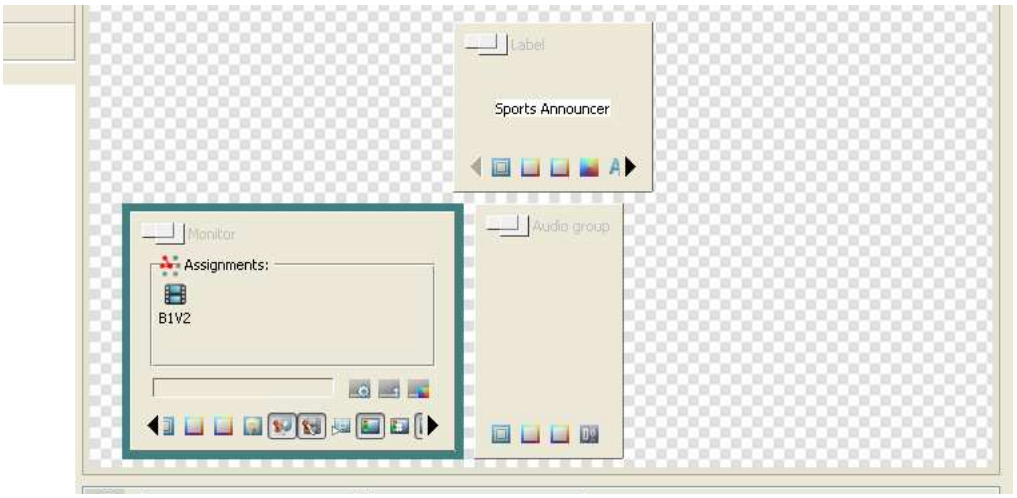


4. Right-click in the **Labels** area and select **Add** from the pop-up menu.

5. Type Sports Announcer and then click outside the typing area to complete the entry.

6. Click and drag the new label to the area above the audio viewport.

Figure 3–58 Adding a Label

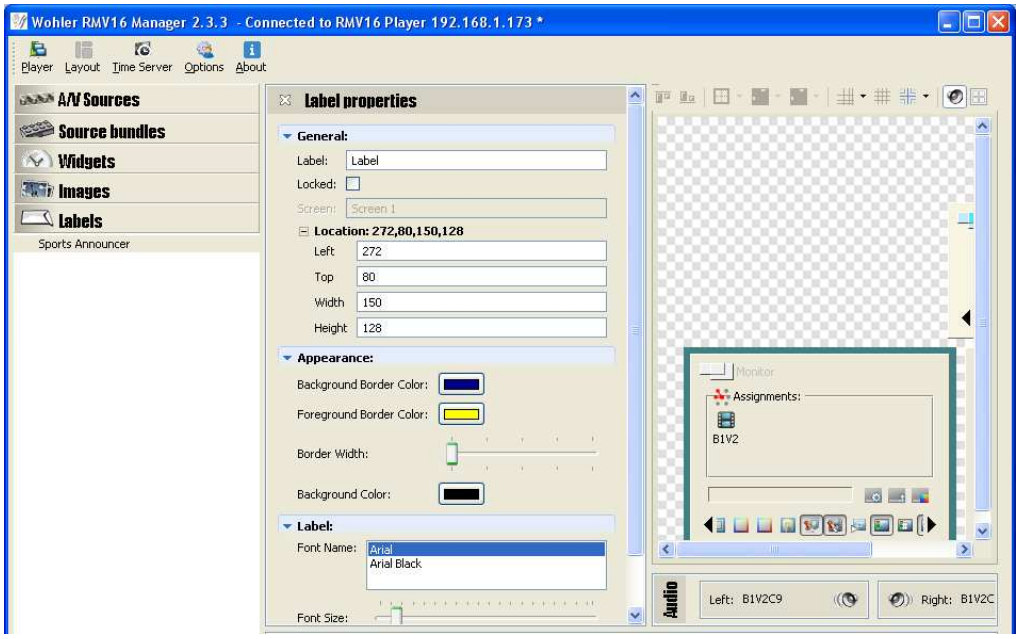


7. Right-click the text area of the new label and select **Show Properties**.

8. Click the **General** section head.

9. When the **Label Properties** dialog appears, expand the **Location** parameters as shown in Figure 3–59 on page 54.

Figure 3–59 Adding a Label



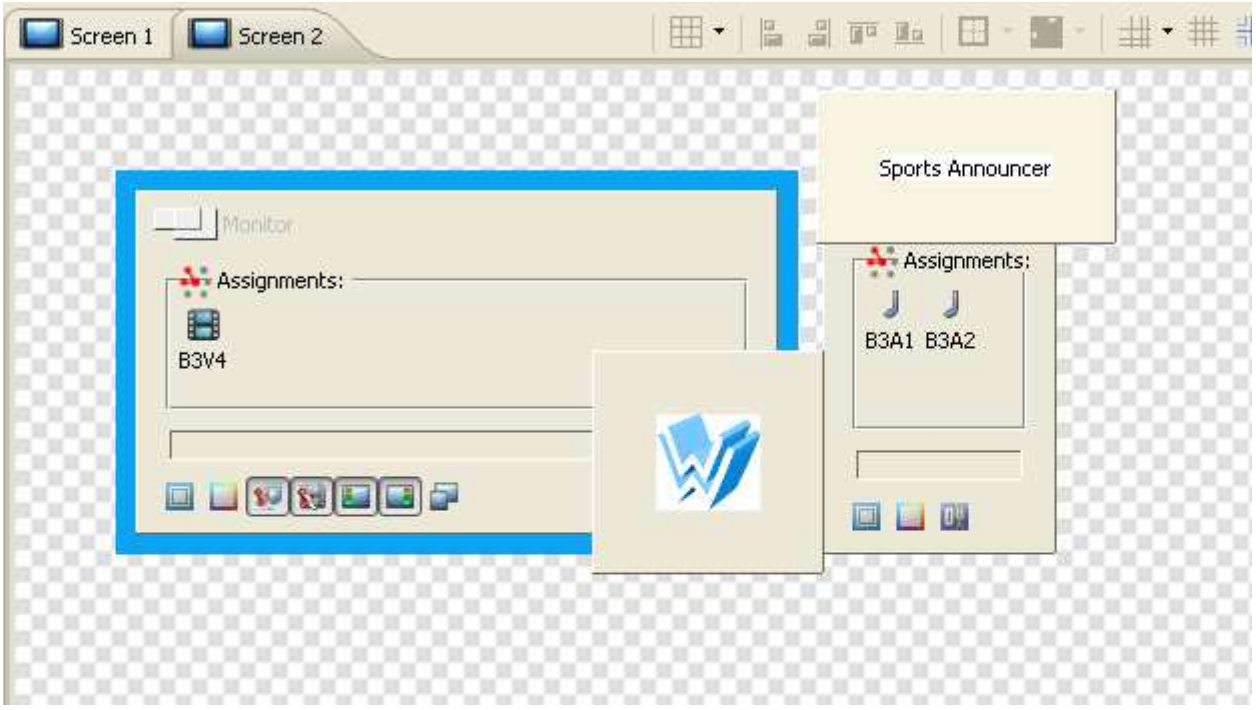
10. Expand the **Label Properties** panel to the right until you can see the closing **X** at the top left corner.

11. Set the **Left** to 400 and the **Top** to 10.

12. Click the **Font Color** button (bottom) and select a dark red.

13. Close the **Label Properties** dialog. Your screen should now be similar to the one in Figure 3–60 on page 55.

Figure 3–60 Modifying the Label



14. Now manually drag the lower edge to the top of the audio viewport.

15. Open the **Layout** menu and select **Save As ⇨Layout 2**.

16. Right-click on the Layout #2 thumbnail (bottom pane) and click **Set as Displayed** to transfer your new layout to the multiviewer output monitor.

17. Look at the A/V monitor to verify that it has accepted your changes.

18. Change the **Font Size** and adjust the viewport **Width** and **Height** as needed to fit the text.

19. Make any other adjustments and then repeat Steps 14 through 16 until the layout is exactly the way you want it.

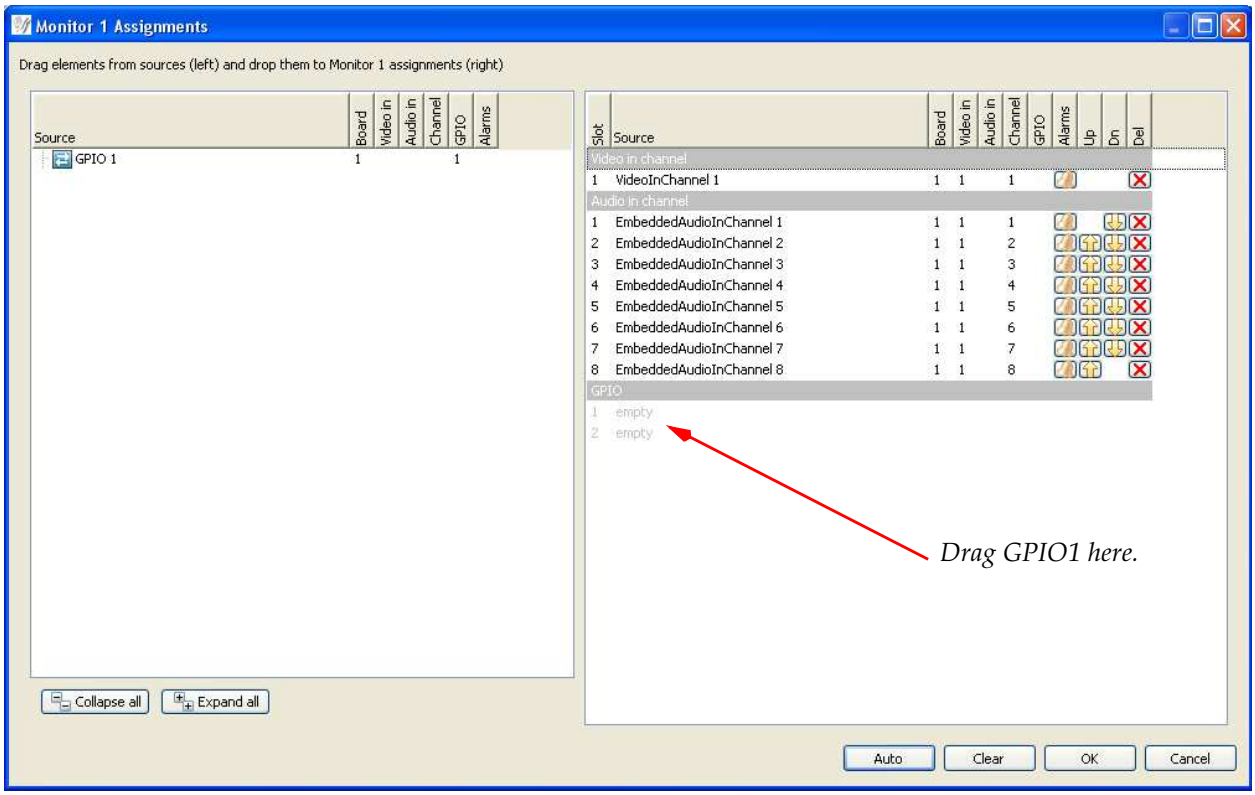
GPI Tallies

With this release, you can now drag and drop GPI sources to the monitor viewport, or you use the **Assignments** window.

Note: While all the GPIOs are labelled as GPIOs (aka GPI/Os) these are all only inputs that will light the tally light on the viewer. The default trigger is low.

1. Return to **Screen 1** and scroll to display **Monitor 1**.
2. Expand the **A/V Sources** to display the **GPIOs**.
3. Drag **GPIO1** to **Monitor 1** to display the **Assignments** window for this viewport (Figure 3–61 below).

Figure 3–61 Adding GPIs to a Viewport



4. Once the window displays, drag GPIO1 from the top of the left pane to the top of the GPIO section in the right pane as shown in Figure 3–62 below.

Figure 3–62 Defining the GPIs

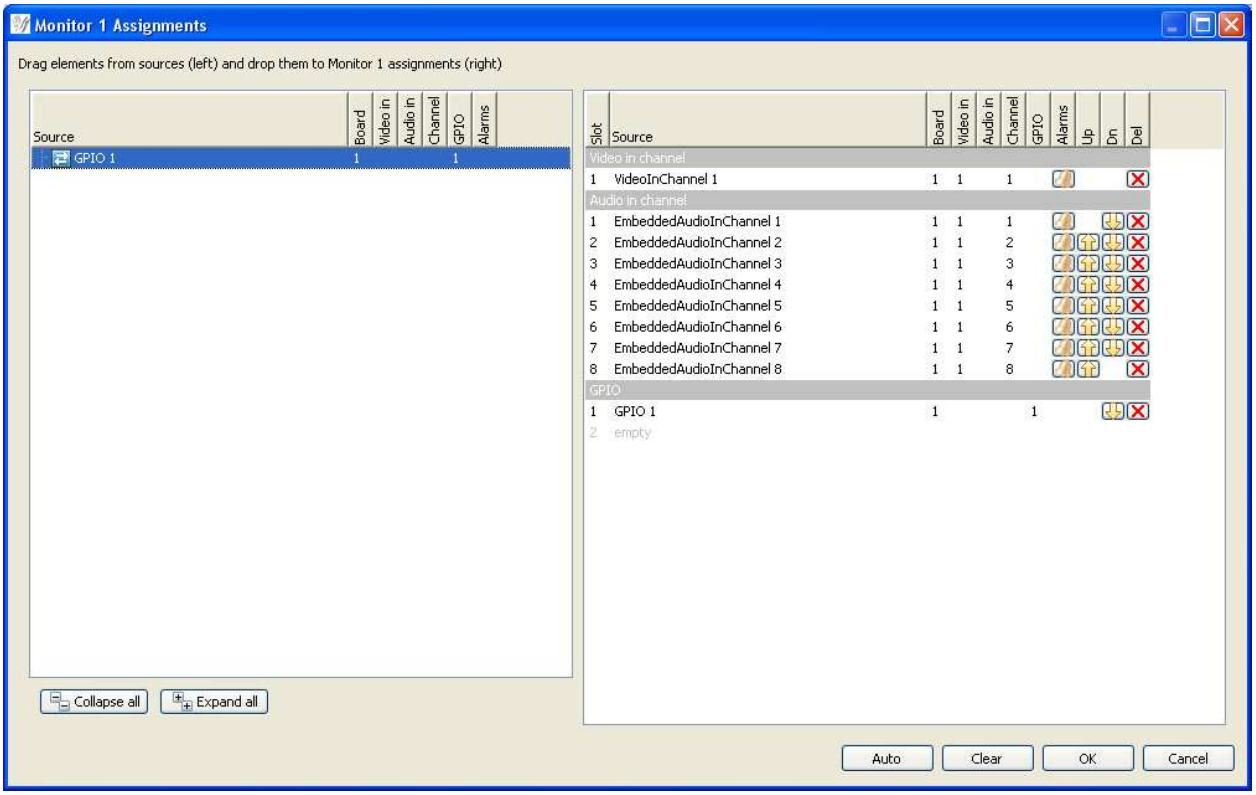


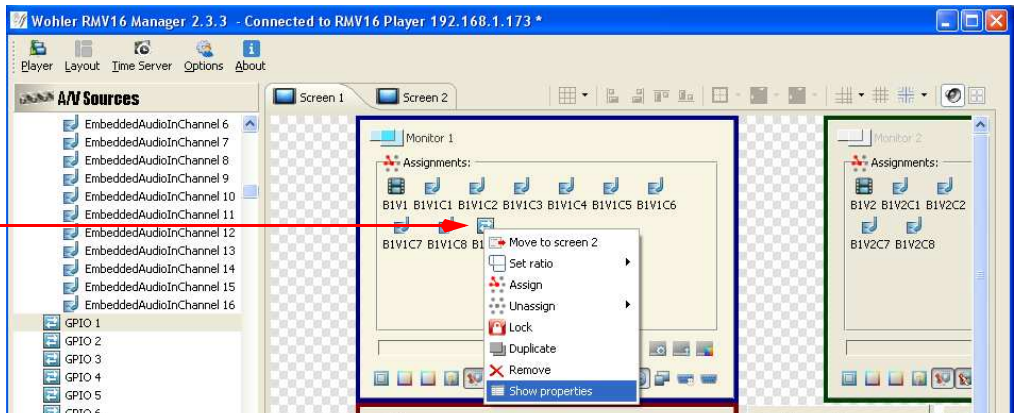
Table 3–10 Tally Position Definitions

Slot	Color
Slot 1	**Red**
Slot 2	**Green**
Both	**Yellow - Both tallies are triggered**

5. Click **OK** to close the window.

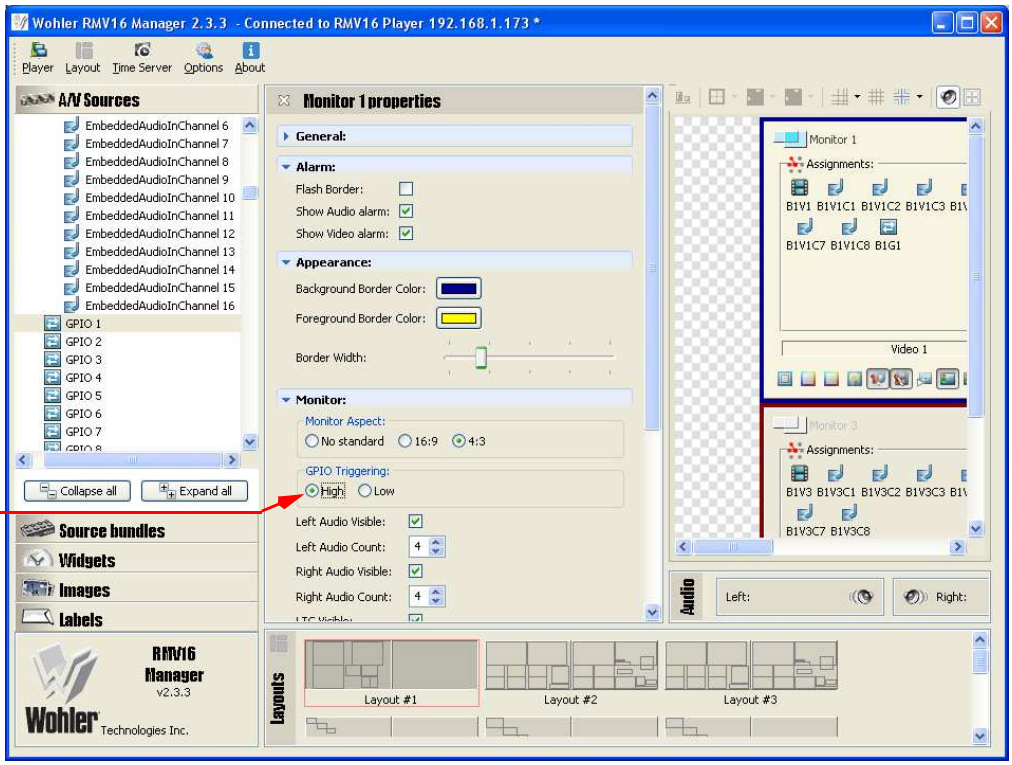
6. Once the RMV16 Manager window redisplays, right-click the GPIO icon in **Monitor 1**'s viewport and select **Properties**.

Figure 3–63 Selecting the GPIO's Properties



7. When the **Properties** dialog displays, click **High**.

Figure 3–64 Modifying the GPIO's Trigger



8. Close the **Properties** dialog.

Dynamic UMD

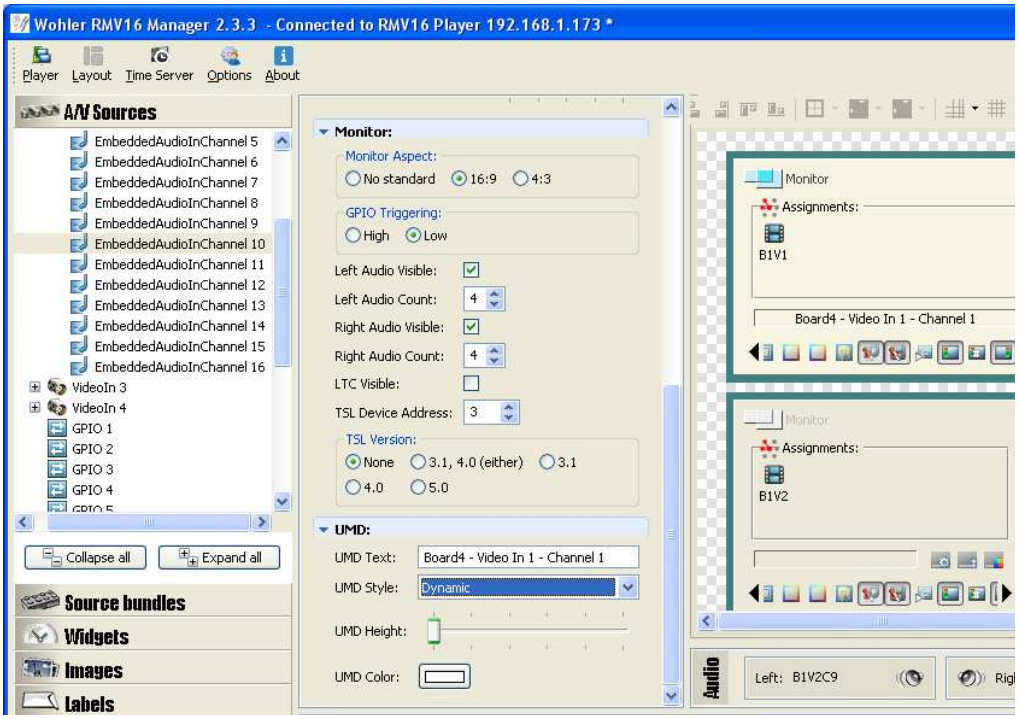
1. Double-click on any video viewport to display the **Properties** pane.

2. Set the **TSL Device Address** (0 to 127) using either the up and down arrow keys, or by typing in the address.

3. Click to select the **TSL Version**.

4. And select any one of the **UMD Styles** that includes the word *Dynamic*.

Figure 3–65 Modifying the GPIO's Trigger

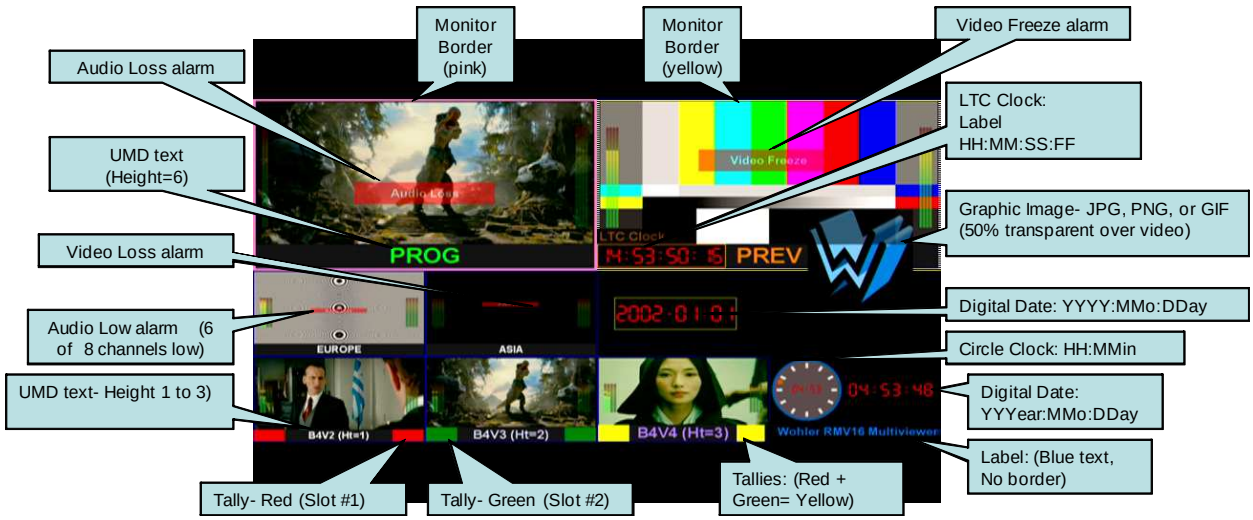


Note: The UMD communication speed should be set to 38400 baud.

When you have made all your changes, save them to the layout. (Refer to the last three pages of Chapter 3 for instructions.)

Note: The layout in Figure 3–66 is different from the examples we've illustrated.

Figure 3–66 Viewer Display



APPENDIX A
Glossary

Definitions

Typically, the words that follow can have multiple meanings even before they are defined specifically for the RMV16 Series multi-viewers. Where appropriate, we have provided both the general use (typical) meaning of the word or phrase and the specific definition in the context of the RMV16 Series multi-viewer operation.

Glossary

Table A–11 RMV Series Glossary

Term	Definition
audio group	**General Use** a group of audio signals associated with a video signal or feed. **RMV16-Specific Use** An audio group is a (bar graph) meter set created outside of a (video) monitor viewport.
assign	**General Use** verb: appointing something to a position or task **RMV16-Specific Use** Right-click in a monitor viewport to assign new or different sources.

Table A–11 RMV Series Glossary (Continued)

Term	Definition
assignment	**General Use** noun: the position or task to which something is assigned **RMV16-Specific Use** Assignments are listed in each monitor viewport, space permitting.
clock	**RMV16-Specific Use Only** The RMV16 has several clock types in the **Widgets** panel: • Circle Clock • Digital Time • Digital Date Drag a clock from the left panel to the (blank) editing space to create a new monitor viewport with the clock.
display	**General Use Only** verb: making information or graphics visible from the computer or multiviewer noun: video image on the computer or multiviewer monitor

Table A–11 RMV Series Glossary (Continued)

Term	Definition
edit/editing	**General Use** verb: to assemble audio, video and graphics components noun: an act or instance of editing **RMV16-Specific Use** verb: in this manual, a multiviewer layout is the thing being edited noun: as opposed to other-spaces or control-actions for clarification **Editing Area**: background checkerboard of the editor. editing space: entire space within the editing window. editing window: all of the above plus the editing tools. editing tool: an icon used only for editing-actions.
editor	**General Use** Either the person or tool used to modify audio, video, and graphics for presentation **RMV16-Specific Use** Either the person performing the edit process, or the portion of RMV16 Manager software used to create and modify multiviewer layouts
element	**RMV16-Specific Use Only** Elements include **A/V Sources**, **Widgets**, **Labels**, and **Images** dragged from left panel to editing area.

Table A–11 RMV Series Glossary (Continued)

Term	Definition
image	**General Use** A representation of a visual or graphic form **RMV16-Specific Use** Images are (PC file) element types that you can drag into the editing area as needed for placement of logos, wallpaper backgrounds, etc. They will act as background or foreground objects according to placement order. They include several properties to control their appearance.
label	**General Use** verb: designate text for identification noun: a word or phrase identifying the contents or origin **RMV16-Specific Use** verb: same as generic noun: 1. Labels placed as elements from the left panel will display that text for output with the established text-properties. 2. Each viewport has a label for text entry to aid the editor that does not get displayed for output. **Note**: UMD is a specific text block embedded along the bottom edge of certain monitor viewports/windows for video and audio source ID

Table A–11 RMV Series Glossary (Continued)

Term	Definition
layout	**RMV16-Specific Use Only** Layouts are the edited representation for a player output. Layout (#n): the numbered layout stored by the player. Layout (name): the titled layout as imported or exported. **Layouts** pane: the bottom right space within the RMV16 Manager used for selection and control of layouts. Double-click to open a layout for editing or Right-Click to perform control actions.
manager	**General Computer Use** In computing a manager is a program that organizes and controls resources **RMV16-Specific Use** same, namely the RMV16 Manager
monitor	**General Use** verb: checking the quality or content of an audio or video signal noun: the device checking the quality or content of an audio or video signal **RMV16-Specific Use** monitor: generally, the computer monitor used to display the Manager software or a video monitor used to display one Screen of the multiviewer output. Monitor viewport: the (virtual) editor-viewport for a video source image, with associated properties Monitor window: the (actual) displayed image area, with associated properties, comprising a portion of the multiviewer output

Table A–11 RMV Series Glossary (Continued)

Term	Definition
Multi-viewer	**General Use** a signal processing and monitor system used to combine multiple video images, often with audio and text data, into one video image for centralized monitoring to enable control of broadcast sources **RMV16-Specific Use** The Wohler RMV16 Multiviewer Systems consist of input and output processor and I/O card-sets, called modules, housed within 1RU or 3RU frames. Input modules expand the output modules' sources. Each output module supports two HDMI video monitors-each of which can be considered a multiviewer. With multiple players linked over a network controlled by one software Manager, the concept can be expanded to many multi-viewers forming a “video wall” in the same room or other rooms.
player	**General Use** In consumer electronics; a device that plays media sources to produce an audio and/or video signal for playback. **RMV16-Specific Use** An RMV Player represents a hardware source-group within the multiviewer, as defined and controlled by the Manager software. Players operate continuously, pausing only to restart or when layouts are changed.
properties	**General Use** attributes **RMV16-Specific Use** Properties control how that viewport's information is to be displayed for output. Double-Click on a viewport to view and modify its properties. Icons along the bottom edge of viewports, space permitting, are a quick way to control commonly used properties.

Table A–11 RMV Series Glossary (Continued)

Term	Definition
restart	**General Use** In computing: warm boot. **RMV16-Specific Use** A software-initiated reboot of an individual player.
screen	**RMV-Specific Use Only** **Screen 1** or **Screen 2**: the RMV16 Manager's edit window selection or contents therein. **Note**: Screen is never used to refer to the video being displayed by **HDMI 1** or **HDMI 2** output ports
source	**General Use** An audio, video, time or control signal. **RMV16-Specific Use** **A/V Sources** are element types to be dragged into monitor-viewports. Drag a source from the left panel to the (blank) edit area to create a new monitor viewport. Drag a source into an existing monitor viewport to assign it there.
viewport	**General Use** In graphics editing; a 2D representation of a 3D scene. **RMV16-Specific Use** The graphical representation of associated elements and properties created by the Manager software for the purpose of editing associated elements.

Table A–11 RMV Series Glossary (Continued)

Term	Definition
window	**General Use** In computing, a window is a visual area used to display information and/or control a process **RMV16-Specific Use** RMV16 Manager Assignments Overview Screens The following items are classified as panes because they are always present, can not be opened/closed (that would be a window), but they can be resized relative to other panes: Elements (split for Sources, bundles, Widgets, Images, Labels) Layouts That leaves the edit area as a workspace-that can not be opened, closed or resized directly. Its maximum size is proportional to the multiviewer HDMI output display resolution. Scroll bars appear when it contains more than can be displayed.

APPENDIX B
Connecting the RMV16 to a LAN

Introduction

In the event that your network administrator assigns you new IP addresses for your RMV16s, this appendix describes the process of assigning the new IP addresses in detail.

Connecting the RMV16 to Your PC

In addition to the Host PC Requirements on page 18, you will also need an Ethernet network cable to connect your RMV16 Series multi-viewer directly to the Ethernet port of your PC.

Note: It does not necessarily have to be a cross-over cable; either one will work.

1. Connect your PC to each player (output card) of the RMV16 with the Ethernet cable.
2. You will also need your packing list since it identifies the current IP address in your RMV16.
3. Launch RMV16 Manager.
4. Right-click on the **Player** icon and select **Settings**.
5. Once the **HW Settings** screen displays, click **Login**. Refer to Figure B–67 on page 70.

Figure B–67 Initial Log In Screen

6. When the **username** and **password** display, type:

   A. **Username**: admin (case-sensitive)

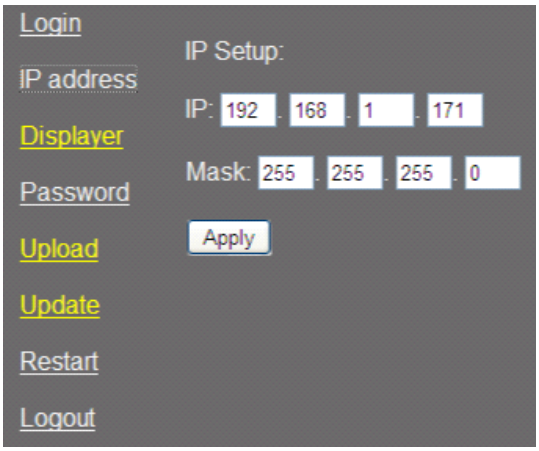
   B. **Password**: wohler (case-sensitive)

   C. Either click **Login** or press the Enter key to continue.

Important: If you opt to change the Password **You must remember it**. Wohler has no way to remotely reset passwords. We strongly recommend you do not change passwords for this single-user system software (where passwords are hardly effective or manageable). Future multi-user software will be able to assign and manage passwords in an effective and secure manner.

7. Click **IP address**.

Figure B–68 IP Address and IP Mask Screen



8. Enter the **IP** address your network administrator gave you.

9. Enter the network Mask your network administrator gave you.

10. Click **Apply**.

11. Click **Restart** text.

12. Click the **Restart** button to restart the player with this new IP address.

13. Repeat for each player from Step 4 on page 69.

14. Finally disconnect the Ethernet cable from your PC and connect the RMV16 to the network.

Important: This concludes the procedure for installing your RMV16 to your LAN. Resume Software Installation on page 19.