

MediaCento IP Video and Audio over IP Transmitters and Receiver

Simplify and save. Use a wired or wireless network to extend HD-quality digital signage content.

Choose a standalone or PCI card transmitter. Both work with the receiver.



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1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
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4. Todas las instrucciones de operación y uso deben ser seguidas.
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10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

IMPORTANT SAFETY INSTRUCTIONS: DO NOT DISCARD; READ BEFORE OPERATING.

Read the safety precautions carefully before using this product. Make sure that you use the product correctly according to the procedures described in these instructions.

The following safety precautions are intended to instruct you in the safe and correct operation of the product and its accessories to prevent injuries or damage to yourself, other persons, and property. Please read and make sure that you understand them before you proceed to the other sections of these instructions.

- Do not operate this device in a wet environment.
- Refer servicing to qualified service personnel only.
- Please read this manual carefully before operating. Follow all operating and other instructions carefully.
- This device should only be operated with the accompanying power adapter.
- Do not use this product near heat sources such as radiators, air ducts, areas subject to direct, intense sunlight, or other products that produce heat.

WARNING: Do not play the supplied CD-ROM in any CD-ROM player that does not support data CD-ROMs. The extremely loud sound that may result from playing the CD-ROM in an audio CD player (music player) could damage the speakers. You might suffer hearing loss from listening with headphones to the loud sounds of a data CD-ROM played on a music CD player.

MediaCento IP Video and Audio over IP Transmitters and Receiver

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Quick Start Guide

Your AVX-DVI-IP-TA or AVX-DVI-IP-TB transmitter comes with the Conductor Software CD, a USB cable for connecting to the host, and an audio cable for hooking up an audio source (for example, a sound card or CD player). The AVX-DVI-IP-TA stand-alone transmitter comes with an additional power adapter. The AVX-DVI-IP-RA receiver comes with a power adapter and a DVI-HDMI adapter. Use the Video and Audio over IP Transmitter and Receiver as a simple digital video extender without installing the Conductor software or use it as the basis for an extended video LAN system over which data, video, and audio are all sent simultaneously.

NOTES:

1. Attach the power connectors to the AVX-DVI-IP transmitters before powering on the units.
2. Before installing each AVX-DVI-IP-RA receiver in a particular location, make a note of the MAC address and/or serial number so that it can be assigned a name and a transmitter if desired.
3. Important: Any network device you add to the video LAN must have a Gigabit Ethernet connection.

To use the video and audio over IP system as a DVI extender:

1. Install the AVX-DVI-IP-TB PC Card transmitter in an open PCI or PCIe slot on the host computer. The PCI/e tab is not used for data—only for mechanical support. When used in a PCIe slot, leave the perforated tab intact. If installing in a PCI slot, break the tab at the perforation to allow the AVX-DVI-IP-TB to seat properly. Connect an available 5-V DC connector from the host power supply to the 4-pin Molex[®] connector.
2. Once your AVX-DVI-IP-TB is installed, connect the DVI cable from the host graphics card (or other video source) to the DVI connector on the AVX-DVI-IP-TB. Connect the audio source to the audio connector on the AVX-DVI-IP using the supplied 3.5-mm audio cable or equivalent. Do not connect the AVX-DVI-IP to the host with a USB cable unless the Conductor software will be used.
3. Connect a CAT5e or CAT6 cable from the transmitter card to the AVX-DVI-IP-RA receiver. The maximum distance between the transmitter and receiver is 300 feet (93.8 m). Use a Gigabit Ethernet network switch to extend this distance another 300 feet.
4. Plug the 5-VDC power adapter into the AVX-DVI-IP-RA receiver unit before connecting the DVI connector from the display monitor. Connect the receiver to the display monitor with a DVI cable (or an HDMI cable using the adapter supplied) and an RCA-to-3.5-mm audio cable.
5. As soon as video, audio, and power cables are connected, the receiver will play the pre-recorded LocalPlay frame (shown below) and audio content in the absence of a live video stream. If the transmitter and receiver are communicating correctly, then live video generated by the graphics card will be displayed on the monitor. At this point, the hardware is correctly connected as a DVI extender.



Figure QS-1. Default “LocalPlay” content.

Creating a Video and Data LAN

All Ethernet ports on both the transmitter and receiver function as Gigabit Ethernet switches. Connect common network appliances such as NAS drives, IP cameras, switches, or routers to these ports or add other AVX-DVI-IP transmitter or receiver devices to the LAN. For example, you can install multiple AVX-DVI-IP-TB cards in one host computer for multiple video streams on one LAN. In this case, you can connect the internal Ethernet ports together to include all transmitters on the LAN.

Alternatively, you can daisychain multiple receivers together to extend the same video content to an unlimited number of monitors.

To implement a video LAN:

1. Install transmitters and receivers as needed in Steps 1-5 on the previous page.
2. Verify that live video streams are displayed on all monitors.
3. Connect network appliances or additional video and audio over IP components as desired. Verify that the left LED on all RJ-45 connectors is flashing three times indicating Gigabit Ethernet.

NOTE: You do not need to install “Conductor” software or video LAN implementation unless you require content scheduling or diagnostics or if you are using more than one transmitter.

The AVX-DVI-IP-RA has three LEDs on top indicating power, DVI, and LAN connected. All three LEDs must be on for proper operation. If any of these LEDs are off, you must address the problem.

If the LAN connection is lost, the receiver automatically switches to its on-board LocalPlay content. If the DVI connection is lost, confirm that the monitor is getting power or try resetting monitor power. Both transmitter and receiver units have two LEDs on each network connector. The right LED blinks during data transmission, and the left LED blinks in a specific pattern to indicate the connection bandwidth.

For a Gigabit Ethernet (1000BASE-T) connection, the left LED will blink three times and then pause. A fast Ethernet (100BASE-T) connection will blink two times with a pause, and a 10BASE-T connection blinks once. Neither unit will function properly at a bandwidth less than 1000BASE-T. The LAN LED on top of the receiver lights when that receiver is getting a valid video stream from a transmitter. The LAN LED may be off, but the left LED on the connector still indicates a Gigabit connection. This means that data is received but no valid video stream is detected. In this case, the receiver unit will play its on-board LocalPlay content only until a valid stream is assigned.

1. Specifications

Network Bandwidth: 20–100 Mbps (user-adjustable per channel)

Operation: Point to point, point to multipoint, daisychained

Resolutions: HDTV: 1080p at 60 Hz;

CG: Up to 1600 x 1200 at 60 Hz

Speed: 1000 Mbps

Synchronization Between Receivers: <5 msec (cable delay excluded)

Video Latency: 3 frames (50 msec at 60 Hz)

CE Approval: Yes

Connectors: AVX-DVI-IP-TA, AVX-DVI-IP-TB: Audio: (1) 3.5-mm stereo audio jack;

Video: (1) DVI-D (HDMI with an adapter);

System control/serial in: (1) USB;

Network switch ports: (3) RJ-45 (1000BASE-TX), daisychainable;

AVX-DVI-IP-RA: Audio out: (2) RCA jacks;

Video out: (1) DVI-D (HDMI with an adapter);

Serial out: (1) DB9 F;

Network switch ports: (3) RJ-45 (1000BASE-TX), daisychainable

Power: 5 VDC at 1.5 A

Size: AVX-DVI-IP-TA: 1.1"H x 6.8"W x 4.8"D (2.8 x 17.3 x 12.2 cm);

AVX-DVI-IP-TB: 0.75"H x 4.5"W x 7"D (1.9 x 11.4 x 17.8 cm);

AVX-DVI-IP-RA: 1.1"H x 6.5"W x 5.5"D (2.8 x 16.5 x 14 cm)

Weight: AVX-DVI-IP-TA: 1.3 lb. (0.6 kg);

AVX-DVI-IP-TB: 0.3 lb. (0.1 kg);

AVX-DVI-IP-RA: 1.4 lb. (0.2 kg)

2. Overview

2.1 Introduction

The MediaCento IP: Video and Audio over IP Transmitters and Receiver enable you to stream video movie files and presentations across your LAN to one or more remote displays. Just plug the DVI-D cable (or an HDMI adapter cable) from a graphics adapter, PC laptop, satellite receiver, media player, or other source into the transmitter, then connect an audio source. The system supports simulcasting of multiple channels over networking cabling.

Two types of transmitters are available: a standard version (AVX-DVI-IP-TA) and a PCI card version (AVX-DVI-IP-TB). Both versions packetize digital video and audio input for distributing multiple video streams over one CAT5e/CAT6 cable.

Use the Video and Audio over IP Receiver (AVX-DVI-IP-RA) for the other end of the link. Plug the receiver into any network port on the dedicated LAN to convert Ethernet packets sent from the transmitter back to synchronized video for display.

Use the transmitters with or without the Conductor software. Without the Conductor software installed, the transmitter operates independently of the system and functions as a DVI or an HDMI extender that can distribute content to an unlimited number of monitors over unlimited distances using Gigabit Ethernet switches. When installed, the Conductor software manages several video streams (transmitters), schedules content to be displayed at certain times on certain monitors, and provides LAN diagnostics.

2.2 Features

- Innovative video-over-LAN technology for setting up a highly cost-effective networked digital signage system.
- Extends over ordinary CAT5e or CAT6 cabling. Or use a fiber network or no cable at all. Via inexpensive wireless network adapters, it extends HD video wirelessly, too!
- Also converts video signals to IP multicast format for routing signals over a WAN.
- Completely digital from end to end—your digital content is never compromised.

2.3 What's Included

Your package should include the following items. If anything is missing or damaged, contact Black Box Technical Support at 724-746-5500.

Standalone Transmitter (AVX-DVI-IP-TA):

- (1) Transmitter unit
- Conductor software on CD-ROM
- (1) 20" (50.8 cm) USB cable
- (1) 24" (61 cm) 3.5-mm audio cable
- (1) Power adapter
- This user's manual

Receiver (AVI-DVI-IP-RA):

- (1) Receiver unit
- (1) DVI-D to HDMI adapter
- (1) Power adapter
- This user's manual

PC Card Transmitter:

- (1) PC card transmitter
- Conductor software on CD-ROM
- (1) 20" (50.8 cm) USB cable
- (1) 24" (61 cm) 3.5-mm audio cable
- This user's manual

2.4 System Requirements

AVX-DVI-IP-TA or AVX-DVI-IP-TB:

- 1280 x 720, 24-bit color display
- Dual-head graphics card*
- Gigabit Ethernet (if connecting to a video LAN)

*You can send the DVI-D output from a single head graphics card to the transmitter if the display monitor is within sight of the host computer. Otherwise, a dual-head graphics card is required with one output to a local monitor and the other output to a remote display monitor showing the same content.

Conductor Software:

- Windows® XP or Windows Vista® operating system
- 512 MB minimum RAM, 1 GB recommended
- USB 1.1 interface
- 100 MB hard disk space

2.5 Hardware Description

2.5.1 Video and Audio over IP Standalone Transmitter

Front Panel

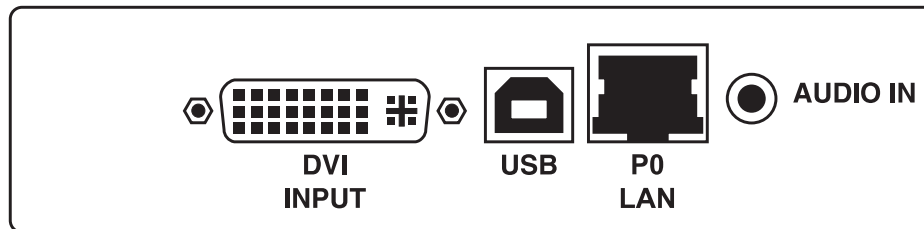


Figure 2-1. Front panel, AVX-DVI-IP-TA.

Table 2-1. AVX-DVI-IP-TA front panel components.

Component	Description
DVI-D connector	DVI input to graphics card or digital video source
USB Type B connector	USB connection to host for diagnostics, configuration, and scheduling
RJ-45 connector	P0 LAN: Gigabit Ethernet network output for video and data
3.5-mm connector	Audio in: Stereo audio from sound card or other audio source

Back Panel

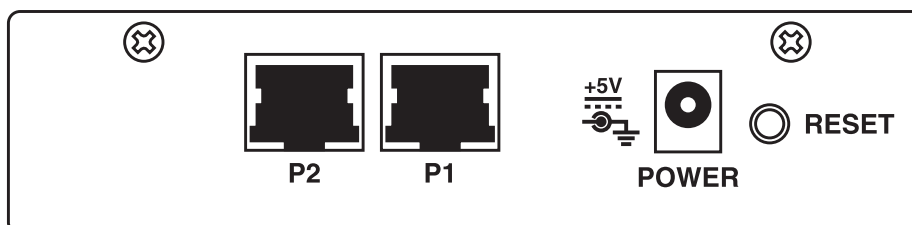


Figure 2-2. Back panel, AVX-DVI-IP-TA.

Table 2-2. AVX-DVI-IP-TA back panel components.

Component	Description
(2) RJ-45 connectors	P2, P1: Gigabit Ethernet connections for video and data (used to connect multiple transmitters together internally to the host computer). Some transmitters do not have Port P2.
Power connector	+5-VDC @1.5 A through supplied AC adapter
Push button switch	Reset on-board processor

2.5.2 Video and Audio over IP PC Card Transmitter

Front Panel

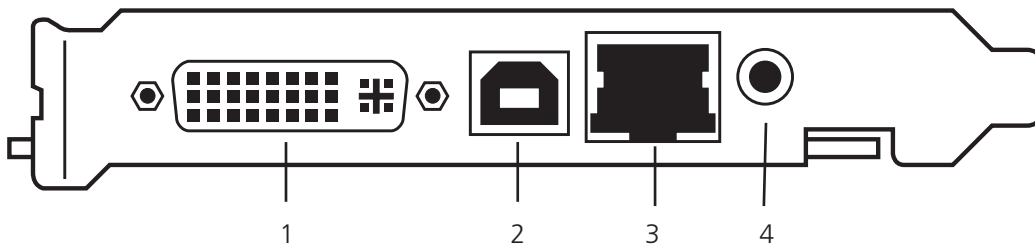


Figure 2-3. Front panel, AVX-DV-IP-TB.

Table 2-3. AVX-DVI-IP-TB front panel components.

Number	Component	Description
1	DVI-D connector	DVI input to graphics card or digital video source
2	USB Type B connector	USB connection to host for diagnostics, configuration, and scheduling
3	RJ-45 connector	P0 LAN: Gigabit Ethernet network output for video and data
4	3.5-mm connector	Audio in: Stereo audio from sound card or other audio source

Back Panel

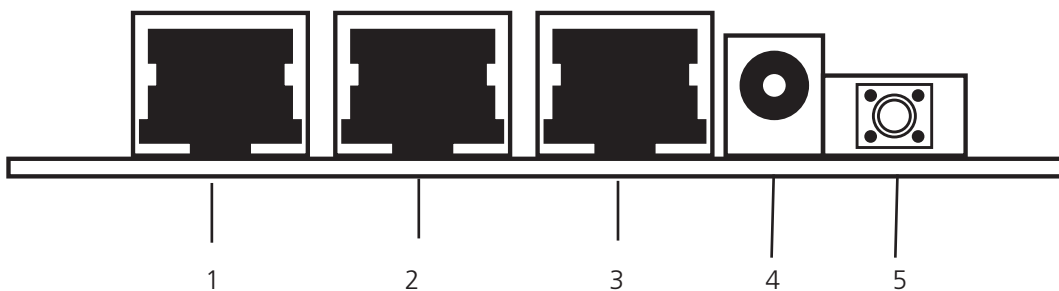


Figure 2-4. Back panel, AVX-DVI-IP-TB.

Table 2-4. AVX-DVI-IP-TB back panel components.

Number	Component	Description
1	(3) RJ-45 connectors	P0–P2: Gigabit Ethernet connections for video and data (used to connect multiple transmitters together internally to the host computer). Some transmitters do not have Port P2.
2	Power connector	+5-VDC @1.5 A (additional 4-pin Molex connector on board for PC power supply connection)
3	Push button switch	Reset on-board processor

2.5.3 Video and Audio over IP Receiver Front Panel

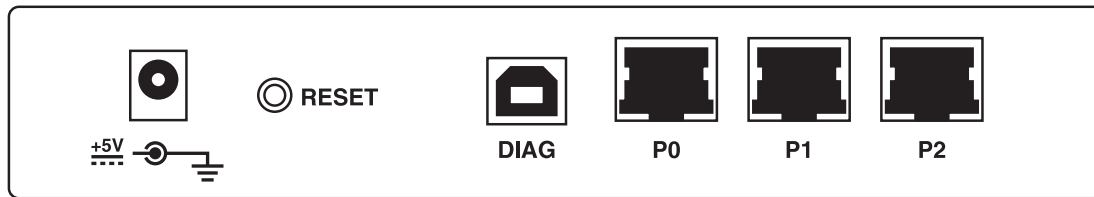


Figure 2-5. Front panel, AVX-DV-IP-RA.

Table 2-5. AVX-DVI-IP-RA front panel components.

Component	Description
Barrel connector	Power: +5-VDC @ 1.5 A through supplied AC adapter
Push button	Resets internal processor
USB Type B connector	USB connection to host for diagnostics (Diag)
(3) RJ-45 connectors	P0–P2: Gigabit Ethernet ports for video and data (internally connected)

Back Panel

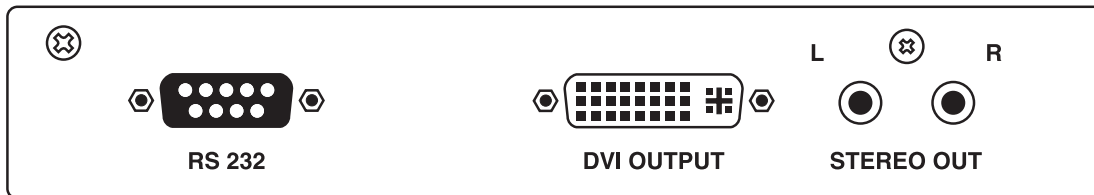


Figure 2-6. Back panel, AVX-DVI-IP-RA.

Table 2-6. AVX-DVI-IP-RA back panel components.

Component	Description
DB9 F connector	RS-232: bidirectional serial port for controlling displays
DVI-D connector	DVI output: displays monitor or TV
(2) RCA connectors	Stereo out, left (L) and right (R)

3. Software

AVX-DVI-IP-TA and AVX-DVI-IP-TB transmitters come with a CD for installing Conductor software on a Windows based computer. Load the CD into a CD drive on the host and the installation process should start automatically. If the installation does not start, double click on the setup.exe file on the root of the CD.

Follow the setup wizard's instructions to install the software. Double-click the Conductor icon installed on the desktop to start Conductor. With Conductor, you can:

1. Create LocalPlay content to upload to receivers. This content is stored to on-board memory and plays either automatically when the LAN connection is lost or through the Conductor scheduler.
2. Turn transmitters on or off.
3. Name transmitters and receivers on the video LAN.
4. Assign receivers to particular transmitters.
5. Schedule tasks at certain times on certain receivers using a Windows application.
6. Log LAN diagnostics if a connection is lost to a particular transmitter or receiver.
7. Immediately halt video and/or audio to any or all components.
8. Broadcast an emergency message using EMCast to all receivers on the video network.

You can use Conductor to control and assign transmitters and receivers when the host computer is plugged into any transmitter's USB port. However, Conductor can only be used to schedule tasks on the host computer. Conductor can be used on multiple computers connected to the video LAN but should only be used on one computer for scheduling or configuring the network.

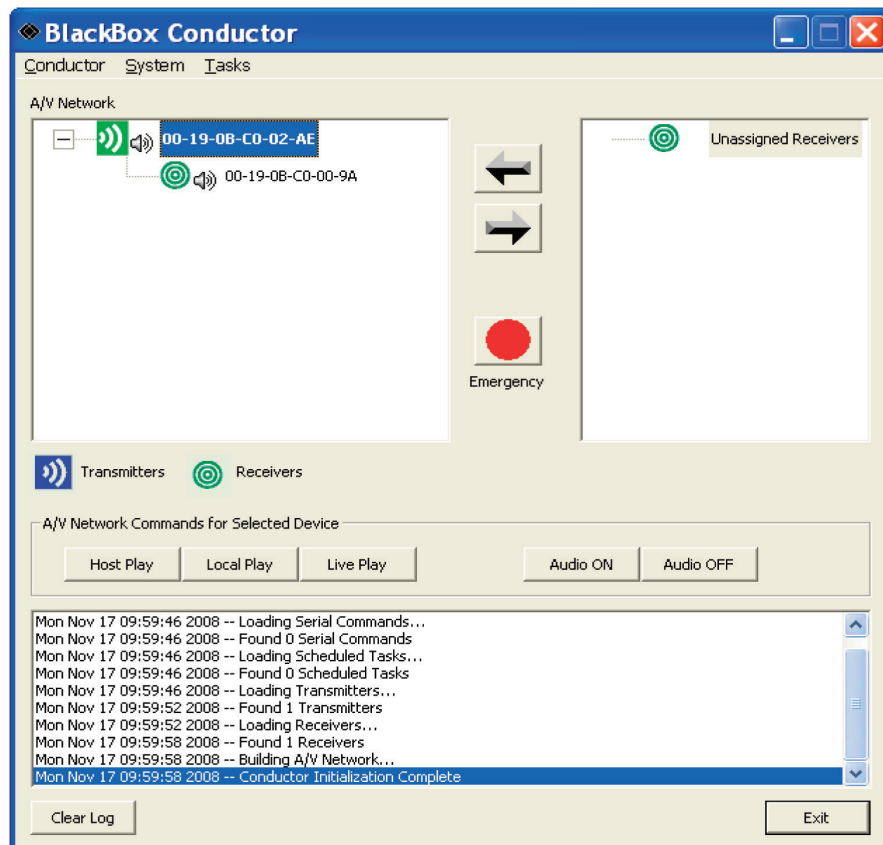


Figure 3-1. Conductor software window.

3.1 Configuring Transmitters and Receivers with Conductor Software

Important: Any AVX-DVI-IP transmitter/receiver pair can be used as a DVI extender out of the box without Conductor installed. However, once Conductor is installed and receivers are assigned, these assignments will be remembered upon next power-up. The factory defaults that allow each receiver to attach to any transmitter as a generic DVI extender are lost. Factory defaults can be restored by right-clicking an assigned transmitter or receiver in the left-hand column and selecting the [Factory Settings] option in the Conductor software (see Figure 3-2).

Do not unassign a receiver in the left-hand column by clicking the right arrow since this will return it to LocalPlay mode instead of LivePlay. Once factory defaults are reset, all previous configuration information is lost.

Conductor searches the network for all hardware installed on the video LAN and lists the transmitters on the left and unassigned receivers on the right. (See Figure 3-1.) Initially all receivers are unassigned. Receivers can be assigned to transmitters by selecting the desired transmitter on the left, the desired receiver to connect on the right, and clicking the left arrow button. Selecting the assigned receiver on the left and clicking the right arrow will unassign that receiver from a particular transmitter. You may also select the receiver and drag and drop it onto the desired transmitter. Once assignments are made, this information will be remembered by the devices. If you exit the conductor software and restart it, the configuration will be retained.

When moving the mouse over the transmitters and receivers, an information window will appear that displays the device name, serial number, IP address, MAC address, video source (Live Play for DVI stream and Local Play or Host Play for pre-recorded local content) and audio status (on/off). (See Figures 3-2 and 3-3.) These values can be changed by activating the popup menu for the device. To do this, select a device and right click with the mouse. The menu will display and you can change the name, change the media and audio status, or open the properties dialog for the device. You can change various settings using the property dialog as well.

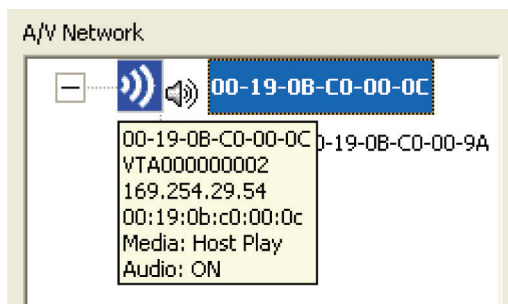


Figure 3-2. Transmitter information window.

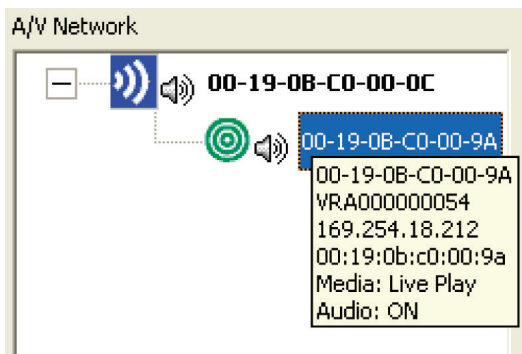


Figure 3-3. Receiver information window.

Pop-up Menu

Popup menus can be activated by right clicking on a transmitter or receiver. Figures 3-4 and 3-5 show the menus.

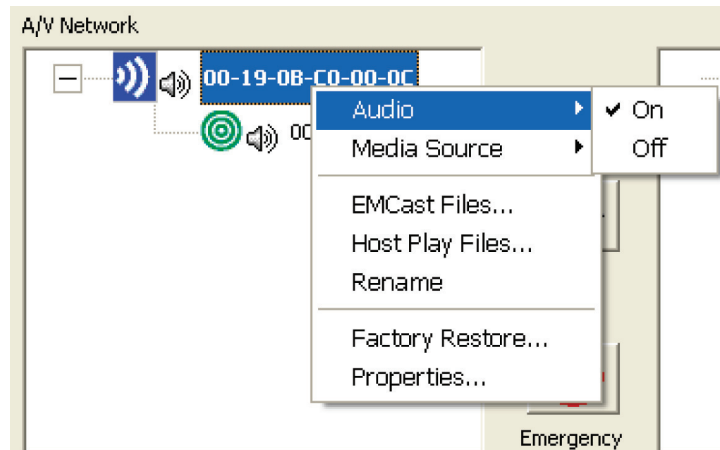


Figure 3-4. Transmitter pop-up menu.

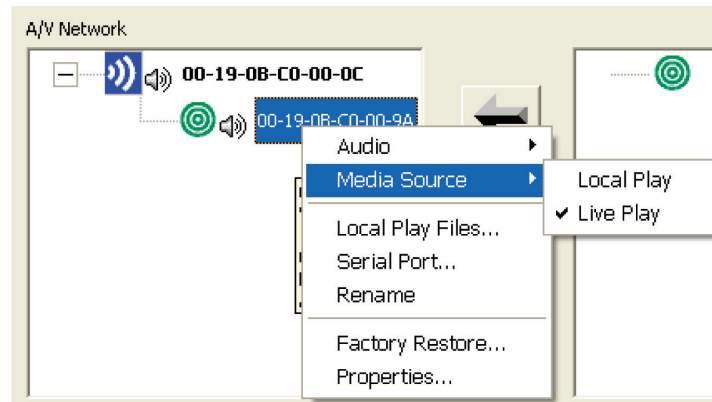


Figure 3-5. Receiver pop-up menu.

The “Audio” command allows you to turn the audio on or off for the selected device. You can also do this by selecting the “Audio ON” or “Audio OFF” buttons in the main window.

The “Media Source” command allows you to change the media being displayed by the selected device. On a transmitter, “Host Play” tells the transmitter to play its local content while “Live Play” instructs the transmitter to play content received on its DVI input. On a receiver, “Local Play” tells the receiver to play its local content while “Live Play” instructs the receiver to play the content it receives over the network. You can also do this by selecting the “Host Play,” “Local Play,” or “Live Play” buttons on the main window.

The “Host Play Files” command allows you to configure the local play content on the transmitter. (See Section 3.2.)

The “EMCast Files” command allows you to configure the emergency broadcast files on the transmitter. (See Section 3.3.)

The “Local Play Files” command allows you to configure the local play content on the receiver. (See Section 3.2.) The “Serial Port” command allows you to configure the RS-232 serial port of the receiver. This is used to send RS-232 commands to the attached display. See the section on Serial Commands for more information.

The “Rename” command allows you to rename the device. Names should be unique and are limited to 64 characters. You may also edit the name by clicking on the name in the tree or by using the “Properties” command.

The “Properties” command displays a property dialog for the device. It includes information shown in the information window and allows you to set various values.

The “Factory Restore” command allows you to restore the device settings as it was shipped from the factory. This should be used with caution. In most cases, you should only select the “User Settings” option on the dialog and then the “Reset” button. Selecting the “Reset” button without any options selected on the “Factory Restore” dialog can be used to reboot the device. This is the same as pressing the “Reset” button on the device.

The red Emergency button activates or deactivates the emergency broadcast feature of Conductor. All receivers on the video network will show the EMLCast files and play the EMLCast audio. Refer to Section 3.3 for more details on this advanced feature. At the bottom of the main window there is a log window that lists informational messages about any action taken by the user or the task scheduler. The “Clear Log” button will erase the messages from the window.

NOTE: The buttons on the main window manipulate the selected item in the “A/V Network” tree and not the tree on the right.

3.1.1 Conductor Menu

The Conductor menu contains the Security and Options command.

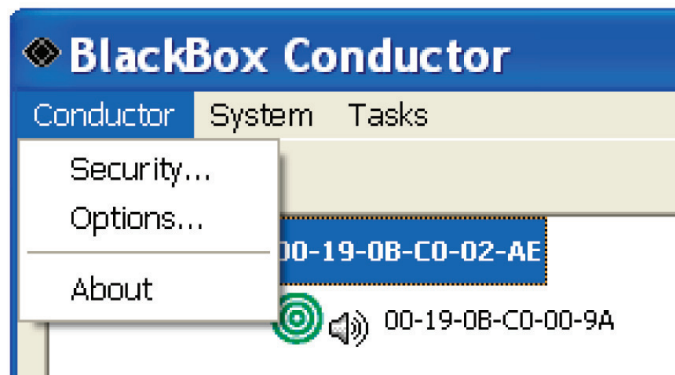


Figure 3-6. Conductor Menu.

The Security command is used to control access to the host play, local play, and EMLCast media.



Figure 3-7. Security Dialog.

Enabling security for a feature forces the user to enter a password before changes can be made to the selected content. For example, if you select “Enable LocalPlay Media Security,” you will be required to set a password. This password will then be required to make changes to Local Play content on any AVX-DVI-IP-RA receiver on the network. To turn off security, you must supply the current password. You may change the password using the “Password” button. To change the password, you will also need to know the current password.

This Options command will activate the Options dialog.

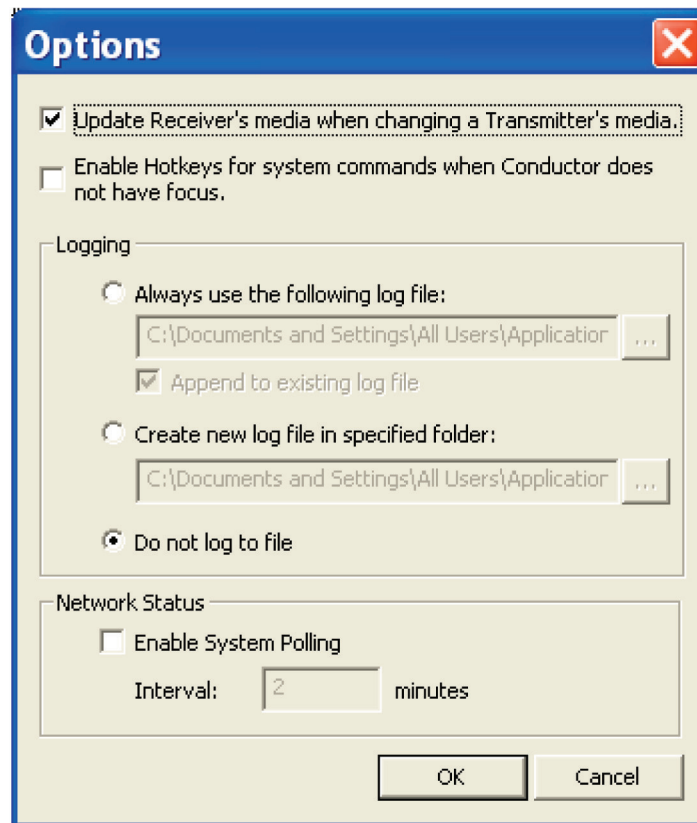


Figure 3-8. Conductor Options.

The first option allows you to control how the media source for receivers are controlled. If this option is turned on, when you change the media source of a transmitter (Host Play to Live Play or Live Play to Host Play), then all of its receivers will also update to display this data. This means if any of its receivers were playing local content because they were in Local Play mode, the receivers will automatically be switched to Live Play mode to play the data being sent by the transmitter. This also applies to scheduled tasks. This option is turned on by default.

The second option allows you turn on or off “hotkeys” for the system commands. This option allows Conductor to process the system shortcut keys (F6, F7, F8, F9, and F10) even when Conductor is minimized and/or does not have input focus. By default, this is turned on.

The “Logging” option allows you to enable or disable logging to a file. The information that is sent to the log window on the main Conductor window will also be sent to a file if file logging is enabled. You have several options in specifying a log file to use. You can select to always use the same log and optionally append to it. You can also choose to create a new log file every time Conductor is started. In this case, you select the folder in which the log files will be stored and Conductor will create a log file based on the current date and time.

The “Network Status” option allows you to poll the system at regular intervals to ensure all devices are communicating properly. This command is disabled by default. The results are sent to the log window and to the log file (if logging to a file is enabled).

3.1.2 System Menu

The system menu contains commands that affect the entire video network or system.

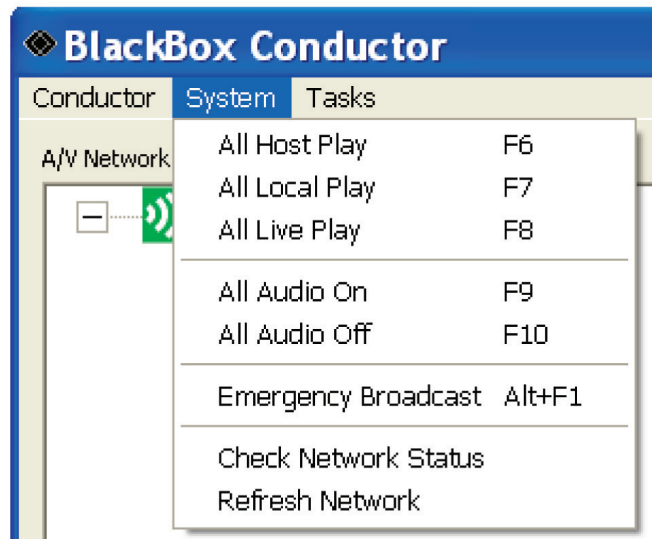


Figure 3-9. System Menu.

The “All Host Play” command instructs all transmitters to play their local play content. The F6 key also initiates this command.

The “All Local Play” command instructs all receivers to play their local play content. The F7 key also initiates this command.

The “All Live Play” command instructs all receivers to play the stream it receives from the transmitter. The F8 key also initiates this command.

The “All Audio On” command turns the audio on for all transmitters and receivers. The F9 key also initiates this command.

The “All Audio Off” command turns the audio off for all transmitters and receivers. The F10 key also initiates this command.

The “Emergency Broadcast” command activates Conductor’s EMCast feature. This broadcasts an emergency message on all receivers. See the EMCast section for more details.

The “Check Network Status” command will open a dialog to allow you to quickly check the status of the network to ensure all devices are communicating properly. This command can also be scheduled to occur at a regular interval using the [Conductor] [Options] command.

The “Refresh Network” command will rediscover the video network and update the display. This is essentially the same as exiting and restarting Conductor.

3.1.3 Setting Device IP Address

Conductor allows the user to set each video-over-IP device to one of the three IP address options. This is useful when integrating equipment on an existing network or if video signals need to be routed between two locations. Black Box video-over-IP equipment uses Internet group management protocol (IGMP) when this function is implemented in a switch used on the network. The switch must be configured for IGMP query (not IGMP snooping). Although the video traffic is IP multicast, generic routing encapsulation can be used to create unicast packets for transport between two routers supporting this function.

Options for IP addresses are:

1. DHCP: a network DHCP server assigns IP addresses independently of Conductor.

NOTE: This option requires a DHCP server to be attached. Do not use DHCP unless a DHCP server is connected to the video-over-IP network.

2. Auto-IP: Conductor assigns each device an IP address within the range 169.254.xxx.xxx

3. Manual: User enters the desired IP address for each device.

Important: Set the IP address of the master transmitter (the one plugged into the USB cable) last. Set IP addresses of all receivers and other transmitters first then reboot each. Wait until all other video-over-IP equipment has been successfully updated with the new IP addresses before changing the master transmitter IP address. If the master transmitter is inadvertently set first, unplug the USB cable from the current master and plug it into another transmitter making it a master. If units fail to show up in AV Network list after setting IP address, unplug the USB cable from the master transmitter and re-plug it.

NOTE: All video-over-IP devices must be in the same IP domain defined by the IP mask. Units are shipped with addresses in the range of 169.254.xxx.xxx. The user can set the IP address to any domain, but the master transmitter can only see other units in its domain.

3.2 Host Play and Local Play Content

Host Play and Local Play are powerful features of the MediaCento IP Video and Audio over IP system. They enable you to upload your own media content to either a transmitter or a receiver. You may upload both images and audio. Host Play and Local Play are essentially the same with Host Play applying to the transmitter and Local Play applying to the Receiver. Below is the Local Play dialog.

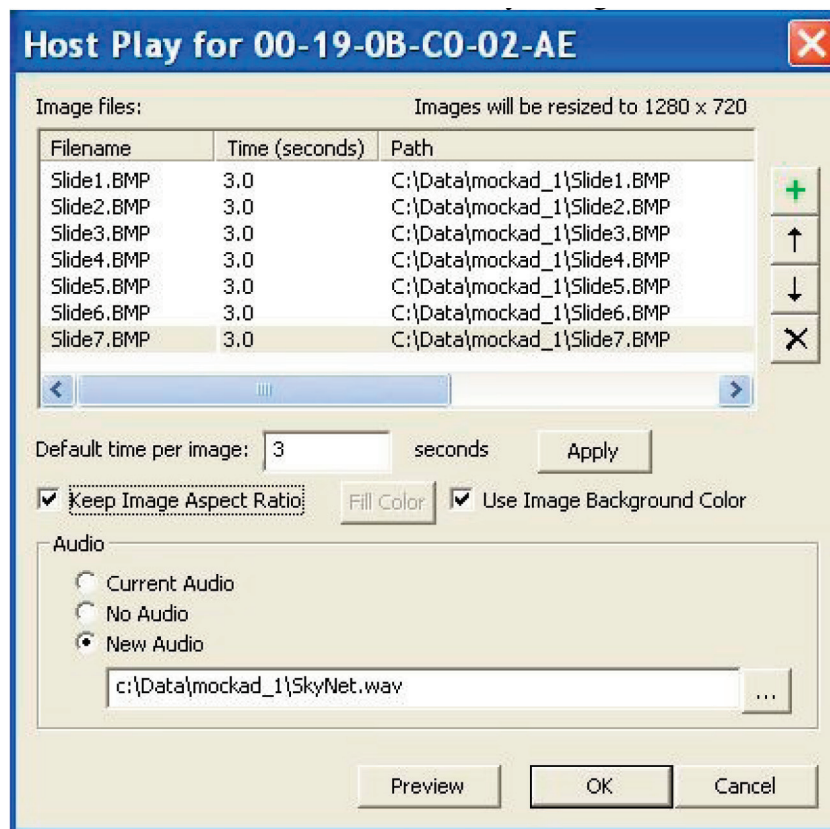


Figure 3-10. Local Play Dialog.

Conductor will accept a variety of image formats including bitmaps, JPEG, GIF, TIFF, and PNG files. The files will be converted to the proper dimension and format when they are uploaded. Images should have a resolution of 1280 x 720. If they do not, by default, the images will be re-sampled without regard to aspect ratio. You may select the option to maintain the image aspect ratio. This option will cause a 1280 x 720 image to be created with a border (top, bottom, left, and/or right) as needed. You may select a color for the border or tell Conductor to use the background color attribute of the image.

You may enter a different display time for each image. By default, each new image added to the list will be displayed two seconds or the time specified on the dialog in the "Default time per image" field. You can then edit each image's time by clicking on the time in the list. You can also select several images at one time and enter a time in the "Default time per image" field and then select the "Apply" button to change the time for all selected images.

Images may be ordered using the up and down arrow buttons.

You may choose to use the current audio, no audio or select a new audio file. Only 16-bit, 2-channel, 44-kHz wave files can be used for audio. Conductor will allow you to select a MP3 file for conversion but because of copyright protection, this may not always work correctly. The audio file will be repeated over and over during the presentation. This allows you to use a small audio file.

Once you have your content selected, you may preview it on the local computer by selecting the “Preview” button.

The “Save” button enables you to save the settings (image list, timing, audio path) to a file. The Open button can then be used to open the file later. This is useful when you want to load the same content on several devices.

If you are happy with the content, select the “OK” button on the Local Play dialog to upload the data to the receiver. This can be a time-consuming process, especially if a large audio file is selected.

If content security has been enabled, you will be prompted to enter the password before updates are applied to the device.

The Host Play dialog is identical to the Local Play dialog. A similar dialog is also used to load EMCast files to a transmitter.

3.3 EMCast

Conductor offers a powerful feature that allows the user to send emergency messages across the A/V network. This feature is called EMCast. It works similar to the Host Play feature. You use the “EMCast Files” menu option to load media content to the local transmitter. Each VTC103 transmitter unit comes preloaded with an example EMCast image. By clicking the red button in the center of the Conductor Software window (Figure 3-1), every receiver on the video LAN will switch to this emergency message (shown in Figure 3-11) within a few seconds.

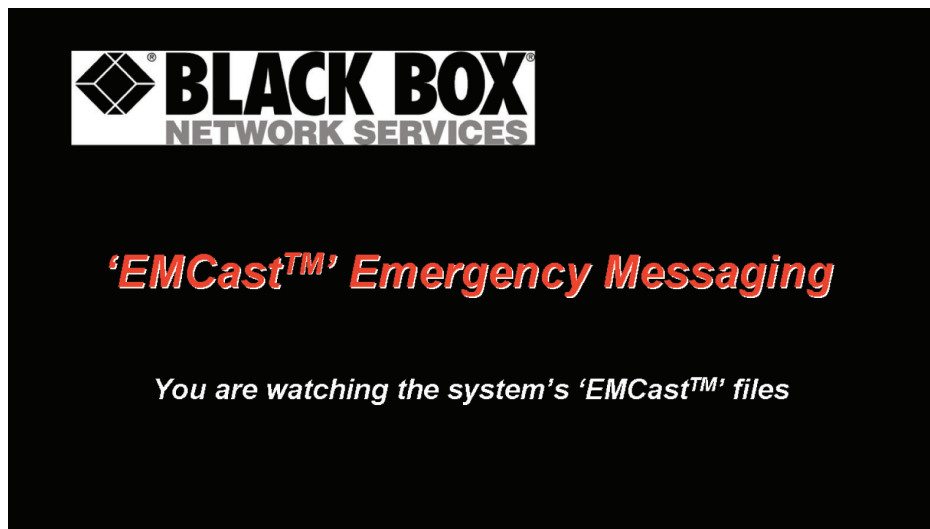


Figure 3-11. Default EMCast message.

When the system is signaled to broadcast the data, the EMCast media is played from the local transmitter and broadcast to all receivers on the network. If there are receivers on the network that are assigned to other transmitters, these receivers will still play the EMCast media of the local transmitter. This is also true if the receivers are playing Local Play content.

The EMCast mode can be activated by the following methods:

1. Clicking the red emergency button on the main window.
2. Selecting the [System]—>[Emergency] command from the menu.
3. Simultaneously pressing the ATL and F1 keys.

4. Using a USB Digital I/O switch. The software currently supports the USB Digital I/O Module. This will allow you to connect to a control system using a TTL signal or switch closure. Call Technical Support at 724-746-5500 for details. Connection should be to Digital Port A0 as per the CyberResearch UMDIO 24L User's Manual. When the switch is low, the emergency broadcast mode is activated. When the switch goes back high, the alert is cancelled and Conductor returns to the previous state.

For option 4, the module must be installed and configured as board 0 and device 0 following the manufacturer's instructions.

3.4 Conductor Tasks

Conductor offers another feature that allows the user to schedule tasks on the video network. These tasks can be created and scheduled to run at regular intervals. The tasks are retained when the Conductor software is exited but they will NOT execute unless Conductor is running.

The Task menu on the main Conductor window allows you to access the task scheduling capabilities.

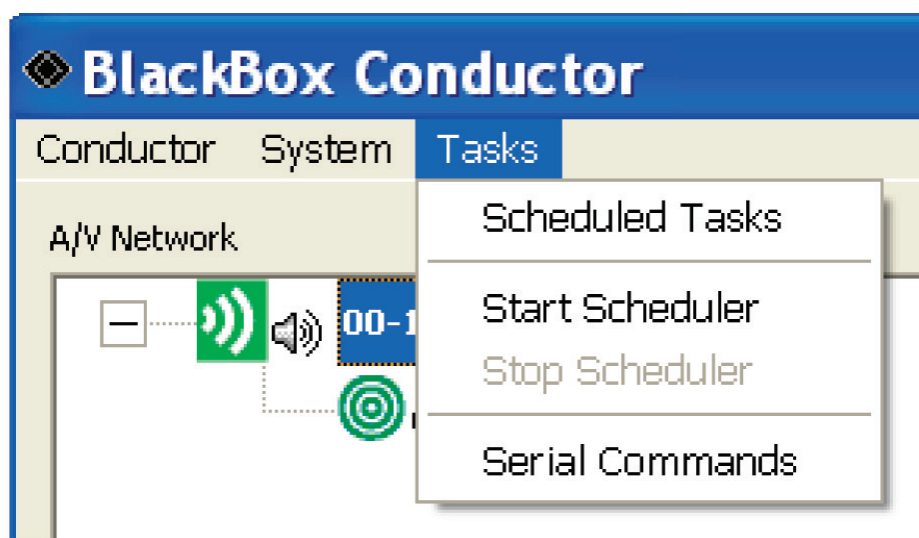


Figure 3-12. Task Menu.

The "Scheduled Tasks" command will open a dialog showing the currently scheduled tasks. It also allows you to create, edit, remove and execute tasks.

The "Start Scheduler" command will start the task scheduler. Conductor will automatically start the scheduler if tasks are defined.

The "Stop Scheduler" command will stop the task scheduler and prevent any scheduled tasks from executing.

The "Serial Commands" command will open a dialog displaying the list of defined serial commands. From this dialog, you can add, remove, and edit serial commands.

3.4.1 Scheduled Tasks Dialog

The scheduled tasks dialog shows the list of tasks currently defined. It is sorted by the "Next Run Time," which is the next time a task is scheduled to execute. It also displays some information about the tasks such as a short descriptive name, the action (or command), the target of the action and how often the command will execute.

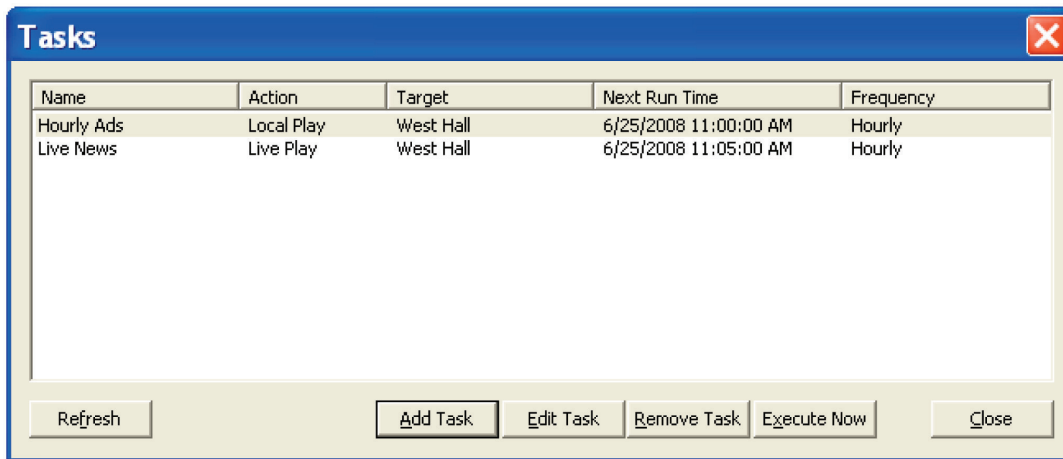


Figure 3-13. Scheduled Tasks Dialog.

The "Refresh" button will update the task list. Usually this involves updating the "Next Run Time" in case a task has executed since the dialog was opened.

The "Add Task" button will open the Task dialog and allow you to create a new task.

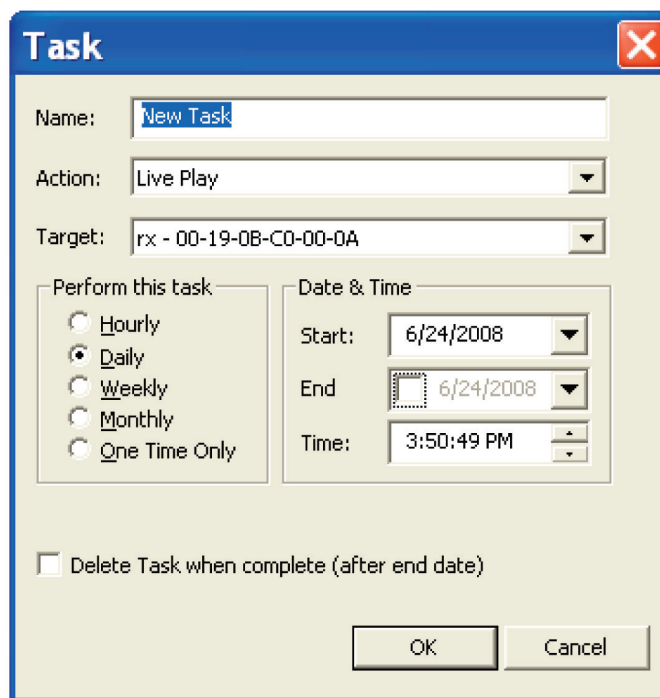


Figure 3-14. Task Dialog.

Each task should be uniquely named, but this is not a requirement. Select an action to perform and then select the appropriate target. Current actions include enabling local play, host play, and live play, and turning the audio on or off.

Once an action has been selected, the “Target” fields will update appropriately. If an action only operates on a receiver, then receivers will be listed in the target list. If an action only operates on transmitters, then transmitters will be listed in the target list. If an action operates on both devices, then all devices will be listed. Transmitters names are prefixed with “tx” and receiver names are prefixed with “rx” to help distinguish between them.

There are various options for scheduling the tasks including how often the task is to execute, the start date and time, and an optional end date.

Scheduled tasks include changing content to Live Play, Local Play, or Host Play and switching audio on or audio off. Additionally, Serial Commands may be scheduled to execute on the receivers.

Windows Task Scheduler can be used if third-party applications need to be scheduled.

3.4.2 Serial Commands

The Serial Command dialog used is add, edit, and delete serial commands. The name of the task and the data, in HEX format, is displayed.

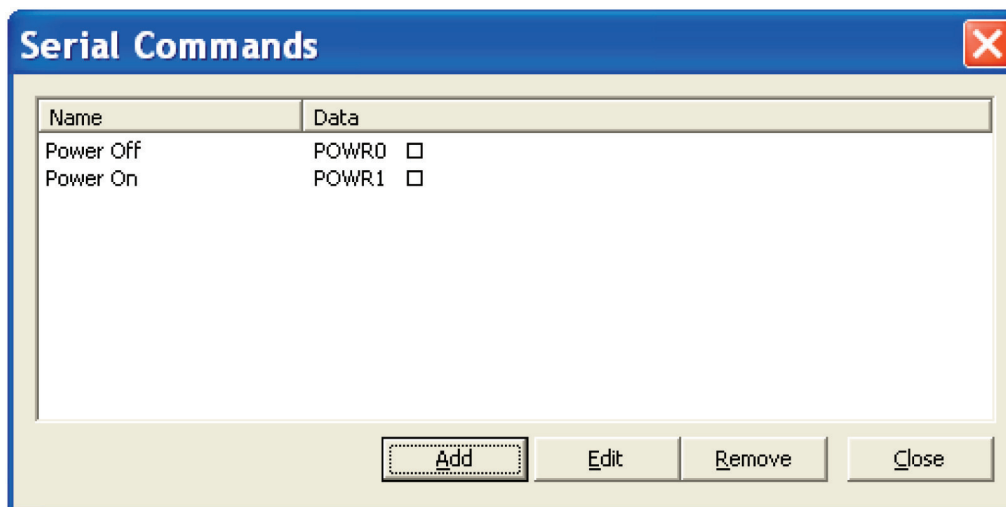


Figure 3-15. Serial Commands.

The “Add” and “Edit” buttons will display the Serial Command Dialog. This dialog will allow you to name the serial command (must be unique) and enter the command data in either HEX or ASCII format. The Delay option tells the system to wait for the specified time after sending the RS232 command. You have the option of sending the data in HEX or ASCII format.

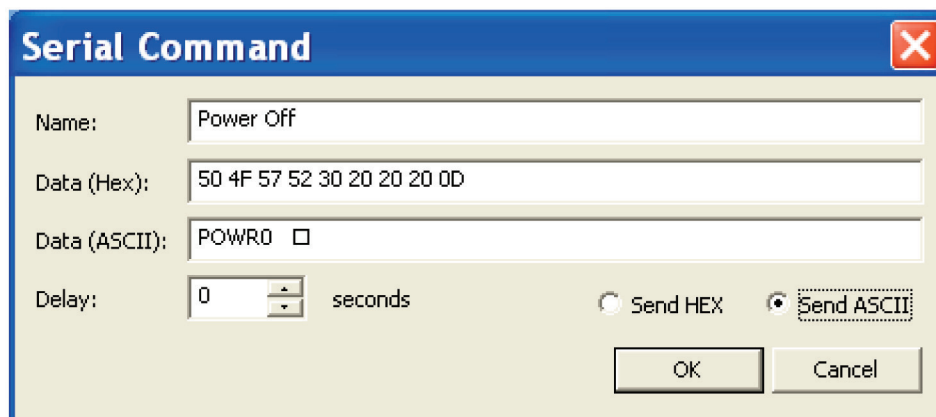


Figure 3-16. Serial Command Dialog.

Keep in mind that you still need to configure the serial port for the receiver through which you wish to send an RS-232 command. You also need to schedule tasks that use the command.

4. Using Cameras for Live Feeds

Live camera feeds can be displayed on the video LAN in two ways:

1. By connecting the camera HDMI output (if available) directly to the AVX-DVI-IP transmitter's DVI input using the supplied HDMI-to-DVI adapter.
2. By connecting a FireWire®, USB, or Ethernet camera directly to the host PC and extending the controlling application onto the remote monitor through the graphics card DVI output.

If the camera is not HD or does not have an HDMI output, video scaling adapters can be used to convert from S-Video, composite, or component to DVI or HDMI.

In both cases above, the camera must be located near the host. However, an IP camera can be located anywhere on the video LAN by connecting to any port on an AVX-DVI-IP transmitter or receiver. In this case, the controlling application runs on a host PC, recognizes and controls the camera through the video LAN, and displays live images with synchronized audio which can then be extended to multiple monitors through the MediaCento IP video LAN.

Appendix A: Troubleshooting

The following text describes problem conditions you may encounter with the MediaCento IP and suggested actions to resolve these problems.

Problem: Receiver indicates no power.

Action: Confirm that power is connected to the unit.

Problem: Receiver indicates no DVI connection.

Action: Check the DVI cable to monitor connection and the monitor power cord. If the monitor is connected and functioning properly, cycle the power on the unit.

Problem: Receiver indicates no LAN connection.

Action: Indicates that the Receiver is not receiving a valid video stream—although LAN data may be received. Confirm that the video is not being disabled through Conductor software and that all LAN cables are connected properly.

Problem: Transmitter or Receiver indicates no Gigabit Ethernet connection.

Action: An intermediate switch or network appliance has been installed that does not support Gigabit Ethernet (1000BASE-T). Remove the device or replace it with a Gigabit Ethernet version.

Problem: The installed transmitter or receiver does not show up in Conductor software, but LEDs indicate a connection.

Action: Check all network cabling and components to verify connection. Click on “Refresh Network” to detect any recently installed components. If there is still no connection, push the pink “Reset” button to reset the unit and wait several seconds for the unit to boot.

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