

## Streaming AV Products

# JMP 9600


Two-Channel JPEG 2000 HD Video Player




# Extron

# Safety Instructions


## Safety Instructions • English


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## Instructions de sécurité • Français


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Для получения информации о правилах техники безопасности, соблюдении нормативных требований, электромагнитной совместимости (ЭМП/ЭДС), возможности доступа и других вопросах см. руководство по безопасности и соблюдению нормативных требований Extron на сайте Extron: [www.extron.com](http://www.extron.com), номер по каталогу - 68-290-01.

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**注意:**  产品上的这个标志意在提示用户设备随附的用户手册中有重要的操作和维护(维修)说明。

关于我们产品的安全指南、遵循的规范、EMI/EMF 的兼容性、无障碍使用的特性等相关内容, 敬请访问 Extron 网站, [www.extron.com](http://www.extron.com), 参见 Extron 安全规范指南, 产品编号 68-290-01。

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안전 가이드라인, 규제 준수, EMI/EMF 호환성, 접근성, 그리고 관련 항목에 대한 자세한 내용은 Extron 웹 사이트([www.extron.com](http://www.extron.com))의 Extron 안전 및 규제 준수 안내서, 68-290-01 조항을 참조하십시오.

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## FCC Class A Notice

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- For more information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the “[Extron Safety and Regulatory Compliance Guide](#)” on the Extron website.
- Pour plus d’informations sur les directives de sécurité, les conformités de régulation, la compatibilité EMI/EMF, l’accessibilité, et les sujets en lien, consultez le « [Informations de sécurité et de conformité Extron](#) » sur le site internet d’Extron.

## Battery Notice

This product contains a battery. **Do not open the unit to replace the battery.** If the battery needs replacing, return the entire unit to Extron (for the correct address, see the Extron Warranty section on the last page of this guide).


**CAUTION:** Risk of explosion. Do not replace the battery with an incorrect type. Dispose of used batteries according to the instructions.

**ATTENTION :** Risque d’explosion. Ne pas remplacer la pile par le mauvais type de pile. Débarrassez-vous des piles usagées selon le mode d’emploi.

## Conventions Used in this Guide

### Notifications

The following notifications are used:

 **WARNING:** Potential risk of severe injury or death.

**AVERTISSEMENT :** Risque potentiel de blessure grave ou de mort.

### ATTENTION:

- Risk of property damage.
- Risque de dommages matériels.

**NOTE:** A note draws attention to important information.

**TIP:** A tip provides a suggestion to make working with the application easier.



## Software Commands

Commands are written in the fonts shown here:

```
^ARMerge Scene, ,Op1 scene 1,1 ^B 51 ^W^C  
[ 01 ] R 0004 00300 00400 00800 00600 [ 02 ] 35 [ 17 ] [ 03 ]
```

```
Esc]X14 *X19* X28* X31* X29CE ←
```

**NOTE:** For commands and examples of computer or device responses mentioned in this guide, the character “0” is used for the number zero and “O” represents the capital letter “o.”

Computer responses and directory paths that do not have variables are written in the font shown here:

```
Reply from 208.132.180.48: bytes=32 times=2ms TTL=32  
C:\Program Files\Extron
```

Variables are written in slanted form as shown here:

```
ping xxx.xxx.xxx.xxx -t  
SOH R Data STX Command ETB ETX
```

Selectable items, such as menu names, menu options, buttons, tabs, and field names are written in the font shown here:

```
From the File menu, select New.  
Click the OK button.
```

## Specifications Availability

Product specification are available on the Extron website, [www.extron.com](http://www.extron.com).

## Extron Glossary of Terms

A glossary of terms is available at <http://www.extron.com/technology/glossary.aspx>.

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# Introduction

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## About this Guide

This guide contains installation, configuration, and operating information for the following Extron media players:

- **JMP 9600 HD** — JPEG 2000 Media Player HD
- **JMP 9600 HD 128** — JPEG 2000 Media Player HD with 128 GB SSD (solid state memory device)
- **JMP 9600 2K** — JPEG 2000 Media Player 2K
- **JMP 9600 2K 128** — JPEG 2000 Media Player 2K with 128 GB SSD

**NOTE:** In this manual, the terms “JMP 9600” and “media player” refer to any model unless otherwise specified.

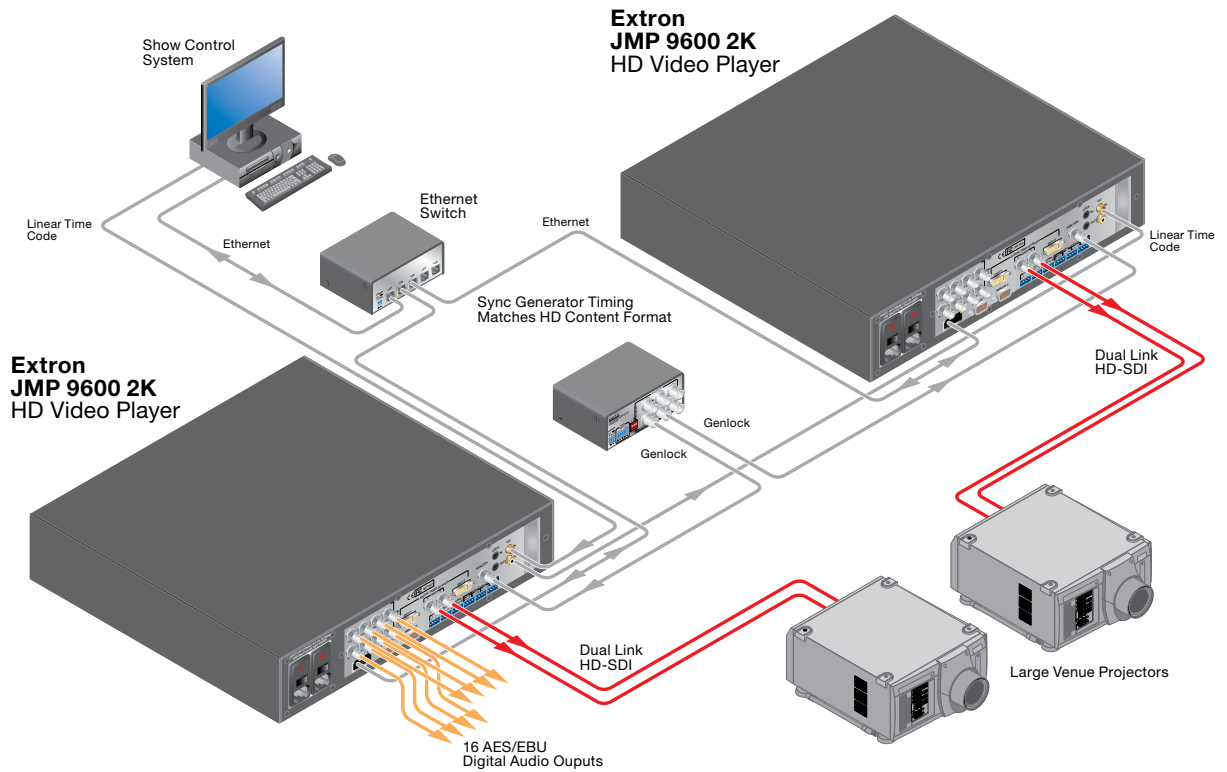
## About the JMP 9600

The JMP 9600 Media Player (see [figure 1](#), on the next page) is a high quality video and audio playback device that provides one or two video playback channels. It meets the most demanding 3D and stereoscopic applications as well as more traditional single display requirements. Depending on the model, the player supports video playback of the JPEG 2000 (2k) and high definition (HD) standards. SSD models use solid state memory rather than magnetic hard drives, but are otherwise identical.

The JMP 9600 also provides 16 channels of uncompressed digital audio in the Audio Engineering Society (AES)/European Broadcasting Union (EBU) standard, commonly called AES3, on BNC connectors.

The JMP 9600 plays visually lossless Digital Cinema Package (DCP) files. These files include video, audio, and other data elements that are encoded to the Digital Cinema Initiatives (DCI) specification. DCI is a standard architecture for digital cinema systems.

The JMP 9600 also features a built-in, full color video LCD display that serves as the interface for local control and also functions as a local “confidence” monitor for video output during playback. The LCD can show the graphical user interface (GUI), the video playback display, or both simultaneously (see [figure 2](#), on the next page). You can control the amount of both video streams (the “alpha blend”) displayed in the LCD.



**Figure 1. Typical JMP 9600 Application**



**Figure 2. Blended GUI and Video Playback Display**

The Linear Time Code (LTC), Lock (JMP 9600 2K only), and Genlock connectors enable multi-unit synchronization and integration into the most demanding applications.

The JMP 9600 manages all program material in the digital environment to ensure that image quality is maintained regardless of the number of times a file is displayed or copied. When integrated into a computer network, the JMP 9600 can be accessed from remote locations for ease of loading content and remote control.

The player can be operated remotely by a PC or control system connected to an RS-232 serial port or to either of two LAN ports.

The player is housed in a rack-mountable, 2U high metal enclosure. With the included rack mounting brackets installed, the player can be mounted in any standard 19-inch rack.

## Features

- **Digital video outputs: HD-SDI or DVI-I** —
  - **Two DVI-I outputs** — One connector per output channel supports 8-bit 4:2:2 sampled RGB or YCrCb.
  - **Two HD-SDI outputs** — Can be configured as one dual link HD-SDI output or two single link HD-SDI outputs (one per channel — two single link outputs are available in 1-channel output mode only).

**NOTE:** With HD-SDI 4:4:4 sampling, both video outputs (HDSDI-1 and HDSDI-2) are connected to the display.

- The dual outputs of either format can operate as two independent sources or as two synchronized outputs.<sup>8</sup>
- **Supports multiple video resolutions** —

Resolution	Frames per second (Fps)								
	23.98	24	25	29.97	30	48	50	59.94	60
<b>JMP 9600 HD and JMP 9600 2K</b>									
1280 x 720						•	•	•	•*
1920 x 1080i			•	•					
<b>JMP 9600 2K only</b>									
1920 x 1080i					•				
1920 x 1080p	•	•	•	•	•	•	•	•	•
2048 x 1080p	•	•	•	•	•	•	•	•	•

\* 4:2:2 only on HD model

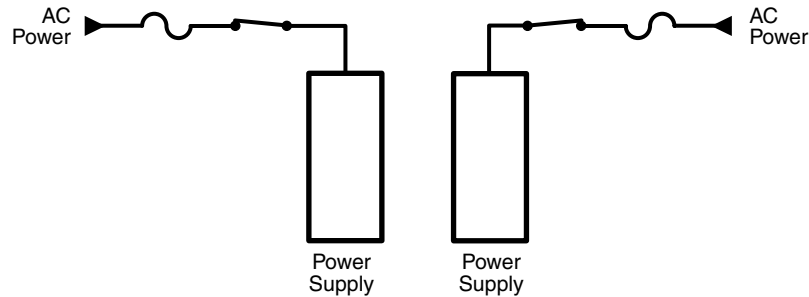
- **1- and 2-channel output modes** —
  - **2-channel output** — Each channel outputs a video image that can be completely different from the video on the opposite channel, though both must be of the same resolution and frame rate. The video signal for each channel is available on two outputs; both the HD-SDI output and DVI-I output for that channel.
  - **2-channel locked output** — Each channel outputs a video signal that is synchronized to the video on the opposite channel. The video signal for each channel is available on two outputs; both the HD-SDI output and DVI-I output for that channel.
  - **1-channel output** — Outputs an analog or digital signal. The video signal for the channel is available on two outputs; both the HD-SDI output and DVI-I output.

**NOTE:** For two clips to load properly in 2-channel or 2-channel locked mode, both must be created at the same resolution and frame rate.

- **Operational flexibility** — Operations such as input/output selection and setting of presets can be performed using a variety of local and remote control mechanisms:
  - **Front panel controller** — Intuitive front panel user interface with an LCD display and a rotary encoder for easy local control of the player. The video portion of a playing presentation can be displayed in the LCD as a confidence monitor.
  - **HTML pages** — Built-in pages for controlling the player from anywhere in the world.
  - **MSVPP commands** — A set of basic commands that provide simple control through a control system or PC.



- **Operational reliability** — Dual redundant power supplies support round-the-clock operation in mission-critical applications.
  - **Two AC power inputs** — Support the media player through any power interruption short of a simultaneous loss of power on both power sources.
  - **Two power input circuits** — The two complete power circuits, from the plug, through fuse, switch, and power supply, to the power insertion onto the power distribution plane, are separate and independent from each other (see figure 3).



**Figure 3. Redundant Power Supply Backs Up Primary**

- **Two power supplies** — The two 100 VAC to 240 VAC, 50-60 Hz power supplies provide worldwide power compatibility.
- **Mutually redundant circuits** — The power supply circuitry is configured to automatically switch over. Should either power supply fail, the remaining, hot power supply immediately assumes the load of the failed supply, meaning zero downtime and no loss of functionality.
- **Remote control** — Support for a wide range of remote control options using Ethernet TCP/IP or serial RS-232 interfaces.
  - **Two LAN ports** — Allow you to simultaneously remotely control the JMP 9600 while you remotely upload new audio/video files to the player. The ports are password protected.

**NOTES:**

- The JMP 9600 is shipped password-protected. The factory configured password for all accounts on this device has been set to the device serial number. This password cannot be changed.
- Two LAN ports allow the media player to reside on two different subnets simultaneously.

- **RS-232 serial ports** — Serial port Remote 1 allows remote control via a PC or a control system.

**NOTE:** Serial port Remote 2 is for factory use only. The customer or end user cannot control the player via the Remote 2 port.

- **1 TByte of internal media storage**
- **Digital audio output** — 16 channels of uncompressed digital audio; AES/EBU 24-bit at 48 kHz or 96 kHz


**NOTE:** 16 channel audio is supported with 4:4:4 video format only. 4:2:2 video formats support 8 audio channel only.

- **Linear Time Code feature** — Supports strict system timing control.

- **ESGEN and MSGEN Genlock capability** — JMP 9600 2K units are capable of multi-unit synchronous operation.

**NOTE:** ESGEN and MSGEN Genlock are proprietary sync signals that are native to Electrosonic® products that have been acquired by Extron. These timing standards are used in older Electrosonic products.

- **Multi-screen capable** — Multiple JMP 9600 2K units can be locked together for multi-screen applications
- **General purpose input/output show control** — Four optically-isolated inputs and 4 changeover relay contact outputs provide enhanced show control.
- **Permanent, rechargeable battery** — The media player has a rechargeable lithium battery to track time of day when power is disconnected.

 **WARNING:** Non-Extron personnel **must not** attempt to remove the battery. Doing so will void the warranty.

**AVERTISSEMENT :** Seul le personnel Extron est autorisé à retirer la batterie.

**ATTENTION:**

- **Explosive hazard — Service note to Extron personnel:** The battery may explode if it is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the instructions of the manufacturer.
- **Risque d'explosion — Note de service au personnel d'Extron :** Un remplacement incorrect de la batterie peut entraîner un risque d'explosion. Remplacez-la uniquement avec un modèle identique ou un type de batterie équivalent recommandé par le fabricant. Jetez les batteries usagées conformément aux instructions du fabricant.

- **Rack mountable**
- **Front panel security lockout modes (Executive mode)** — If a player is installed in an open area, where operation by unauthorized personnel may be a problem, a security lockout mode can be implemented via remote control (RS-232 or Ethernet). When the front panel is locked, no front panel controls are functional and another remote control operation is required to unlock the front panel controller and make the front panel fully operational.

# Installation

This sections details the installation of the JMP 9600, including:

- [Mounting the Media Player](#)
- [Connections and Features](#)

## Mounting the Media Player

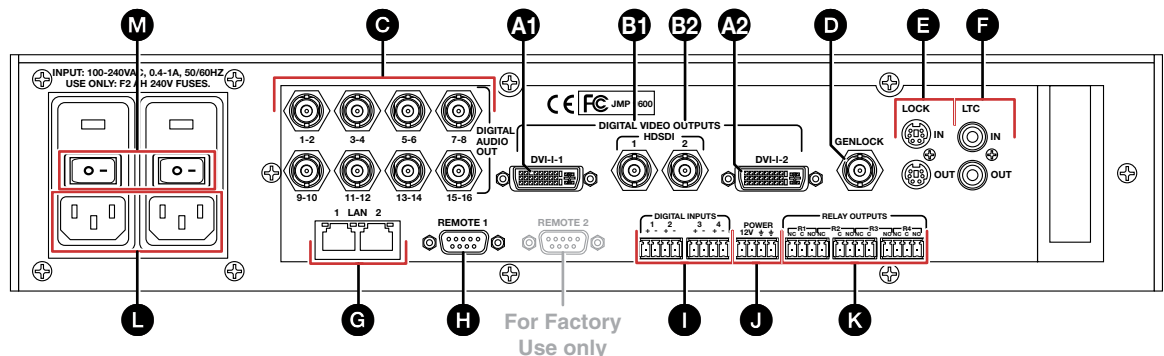
### ATTENTION:

- Installation and service must be performed by authorized personnel only.
- L'installation et l'entretien doivent être effectués uniquement par un électricien qualifié.

Detailed mounting instructions can be found in [Mounting the Media Player](#) on page 100. The 2U high, JMP 9600 can be placed on a tabletop or mounted on a rack shelf. Use the included hardware for rack mounting.

## Connections and Features

All system connections are on the back of the media player (see figure 4).

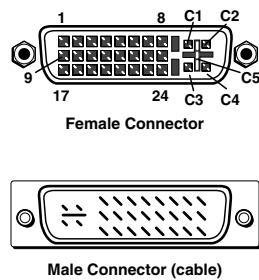


**Figure 4. Rear Panel Connections and Features**

- |   |  |
|---|--|
| <b>A</b> Output DVI-I connectors (see <a href="#">page 7</a> )          | <b>H</b> Remote (RS-232) port 1 (see <a href="#">page 11</a> )     |
| <b>B</b> Output HD-SDI connectors (see <a href="#">page 7</a> )         | <b>I</b> Digital Inputs 1 through 4 (see <a href="#">page 12</a> ) |
| <b>C</b> Audio Output connectors (see <a href="#">page 8</a> )          | <b>J</b> Power port (see <a href="#">page 12</a> )                 |
| <b>D</b> Genlock Input connector (see <a href="#">page 8</a> )          | <b>K</b> Relay Outputs (see <a href="#">page 12</a> )              |
| <b>E</b> Lock Input and Output connectors (see <a href="#">page 8</a> ) | <b>L</b> AC Power Input connectors (see <a href="#">page 13</a> )  |
| <b>F</b> LTC Input and Output connectors (see <a href="#">page 9</a> )  | <b>M</b> AC Power Input switches (see <a href="#">page 13</a> )    |
| <b>G</b> LAN ports (see <a href="#">page 9</a> )                        |  |

## Video and Audio Outputs

- A Digital Video Outputs, DVI-I connectors** — Connect one or two DVI displays to the DVI-I-1 and DVI-I-2 connectors for the direct digital image and RGB video output. Figure 5 defines the pinout for the DVI protocol.



Pin	Signal	Pin	Signal	Pin	Signal
1	TMDS data 2-	9	TMDS data 1-	17	TMDS data 0-
2	TMDS data 2+	10	TMDS data 1+	18	TMDS data 0+
3	TMDS data 2/4 shield	11	TMDS data 1/3 shield	19	TMDS data 0/5 shield
4	TMDS data 4-	12	TMDS data 3-	20	TMDS data 5-
5	TMDS data 4+	13	TMDS data 3+	21	TMDS data 5+
6	DDC clock	14	+5 V power	22	TMDS clock Shield
7	DDC data	15	Ground (+5 V)	23	TMDS clock+
8	Analog V sync	16	Hot Plug Detect	24	TMDS clock-
C1	Analog red	C3	Analog blue	C5	Analog RGB Gnd
C2	Analog green	C4	Analog H sync		

**Figure 5. DVI Output Connectors**

### NOTES:

- Both DVI connectors can output single-link DVI (digital) video and traditional analog video.
- DVI signals run at a very high frequency and are especially prone to errors caused by bad video connections, too many adapters, or excessive cable length. To avoid the loss of an image or jitter, follow these guidelines:
  - Do not exceed 16.4 feet (5 meters) of standard cable length.
    - Extron IN9700 cable **can** exceed 16.4 feet for single link of DVI-D.
  - Use only cables designed for DVI signals. Use of non-DVI or non-HDMI cables or modified cables can result in a missing video output.
  - Limit or avoid the use of adapters.

Two DVI-A-to-VGA adapters are included with the media player that allow you to accommodate an analog-only output on more standard connectors.

- B Digital Video Outputs, HD-SDI connectors** — Connect one or two HD-SDI devices to the HDSDI-1 and HDSDI-2 BNC connectors.



**NOTE:** A dual-link HD-SDI output requires using both connectors for a single video signal and selecting the mode, either on the front panel (see **Video submenu** on page 32) or via an MSVPP command (see the **setHdsdimode** command on page 68).

- C Digital Audio Output connectors** — Connect devices that can receive and decode AES3-encoded audio to these 8 BNC connectors to receive up to 16 channels of audio.



**NOTES:**

- The AES3 protocol supports two channels of audio on one BNC connector.
- Media files that are encoded with 4:2:2 subsampled video support only eight channels of audio. With 4:2:2 video:
  - Audio channels 1 through 8 are associated with video channel 1.
  - Audio channels 9 through 16 are associated with video channel 2.

## Sync

In sync-critical applications, the media player can use one of two possible external sync signals, Genlock or Lock, in addition to the always-available Linear Time Code (LTC), to synchronize itself with other devices within a larger system. The media player can generate two of the sync signals to other devices.

**NOTES:**

- Use only one of the Genlock and Lock sync types (items ④ and ⑤) available.
- Ensure that the resolution and frame rate of the applied genlock or lock input signal matches the resolution and frame rate of the clip to be played.

- D Genlock Input connector** — Connect an external genlock signal to this BNC connector for genlocking the video signal in broadcast or other sync-critical NTSC, PAL, or HDTV tri-level applications.



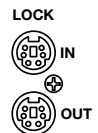
Use a tee connector or distribution amplifier to connect any downstream equipment that requires genlocking.

Snap one of the included ferrite beads on this cable, as close to the unit as practicable.

- E Lock Input and Output connectors** —

**NOTES:**

- The Lock connectors support ES genlock and MS 9200 genlock, which are proprietary sync signals that are native to Electrosonic® products that have been acquired by Extron and to older Electrosonic products.
- These connectors are present on all units but only JMP 9600 2K units support ES genlock and MS genlock.
- When using ES genlock or MS genlock, the video signal resolution and frame rate must match on all players.

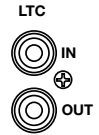


**Lock Input connector** — Connect an external ES genlock or MS genlock sync signal to this 6-pin mini-DIN connector for the media player to function as a sync receiver of another device.

**Lock Output connector** — Connect any downstream equipment that requires an ES genlock sync signal to this 6-pin mini-DIN connector to either route the external sync signal throughout the system or for the media player to function as a sync generator.

Snap one of the included ferrite beads on each Lock cable, as close to the unit as possible.

**F LTC (Linear Time Code) Input and Output connectors —**



**LTC Input connector** — Connect an external LTC sync signal to this RCA connector for the media player to function as a sync receiver of another device.

**LTC Output connector** — Connect any downstream equipment that requires an LTC sync signal to this RCA BNC connector to either route the external sync signal throughout the system or for the media player to function as a sync generator.

Snap one of the included ferrite beads on each LTC cable, as close to the unit as possible.

## LAN Ports

**G LAN ports** — If desired, for IP control of the media player and content transfer, connect the player to a PC or to an Ethernet LAN, via either of these RJ-45 connectors. You can use a PC to control the networked player with MSVPP commands from anywhere in the world. You can also control the player from any PC via the built-in HTML pages or MSVPP commands and the Extron DataViewer utility.



**Link (green) LED indicator** — The Link LED indicates that the player is properly connected to an Ethernet LAN. This LED should light steadily.

**Act (yellow) LED indicator** — The Act LED indicates transmission of data packets on the RJ-45 connector. This LED should flicker as the player communicates.

### NOTES:

- Extron recommends that each LAN port have a unique IP address.
- The factory default IP and netmask (subnet mask) addresses are as follows:

**LAN 1:**

IP address: 192.168.254.254      Netmask address: 255.255.0.0

**LAN 2:**

IP address: 192.168.254.253      Netmask address: 255.255.0.0

**Both ports:**

Gateway address: 0.0.0.0      DHCP: Off

- Two LAN ports allow the media player to reside on two different subnets simultaneously.

## Cabling

It is vital that your Ethernet cables be the correct cable type and that they be properly terminated with the correct pinout. Ethernet links use Category (CAT) 5e or CAT 6, unshielded twisted pair (UTP) or shielded twisted pair (STP) cables, terminated with RJ-45 connectors. Ethernet cables are limited to a length of 328 feet (100 m).

### NOTES:

- Do not use standard telephone cables. Telephone cables do not support Ethernet or Fast Ethernet.
- Do not stretch or bend cables. Transmission errors can occur.



The cable used depends on your network speed. The player supports the following Ethernet formats half-duplex and full-duplex Ethernet protocols, using the following cable:

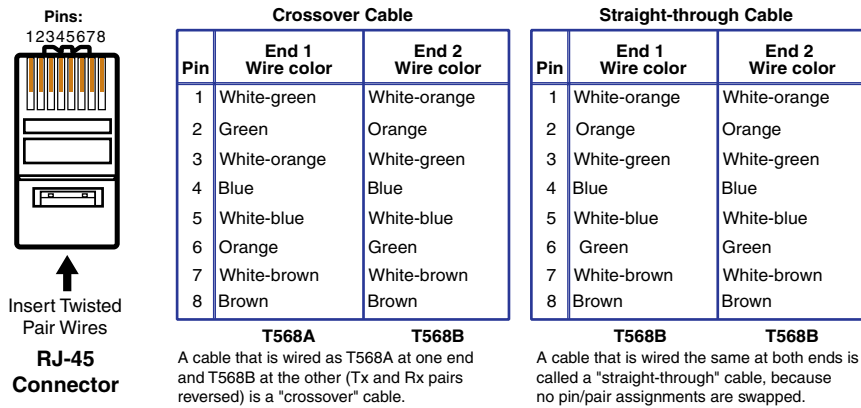
- **10 Mbps (10Base-T – Ethernet)** requires CAT 3 UTP or STP cable at a minimum.
- **100 Mbps (100Base-T – Fast Ethernet)** requires CAT 5 UTP or STP cable at a minimum.
- **1000 Mbps (1000Base-T – Gigabit Ethernet)** requires CAT 5 UTP or STP cable at a minimum.

Snap one of the included ferrite beads on each network cable, as close to the unit as practicable.

### RJ-45 connector wiring

The Ethernet cable can be terminated as a straight-through cable or a crossover cable and must be properly terminated for your application (see figure 6).

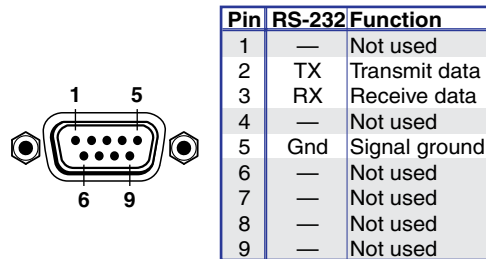
- **Crossover cable** — Direct connection between the computer and the media player
- **Patch (straight) cable** — Connection of the media player to an Ethernet LAN



**Figure 6. RJ-45 Connector and Pinout Tables**

## Remote Control Port

- H Remote (RS-232) port 1** — Connect a host device, such as a computer, touch panel control, or RS-232 capable PDA to the player via this male 9-pin D connector for serial RS-232 (see figure 7) control or pass-through.



**Figure 7. Remote 1 Port**

See the [Programming Guide](#), beginning on page 56, for definitions of the MSVPP commands (serial commands to control the media player via this connector).

Snap one of the included ferrite beads on the Remote cable, as close to the unit as possible.

### NOTES:

- Unlike products that were designed by Extron, former Electrosonic products use a **male** connector. You may need an adapter.
- Serial port Remote 1 can be set to ControlMSVPP (control the player), Passthrough (pass the signals through to a controlled device), or Disabled.
- The media player can:
  - Operate at 300, 600, 1200, 1800, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 baud rates
  - Use 7 or 8 data bits
  - Use no parity, even parity, or odd parity.
  - Use 1 or 2 stop bits
- Serial port Remote 2 is for factory use only. The customer or end user cannot control the player via the Remote 2 port.

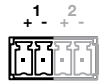
## Digital Inputs and Relays

The Digital Inputs and Relays ports provides optically-isolated digital inputs and relay outputs that can be controlled by the show control software. See the [Digital inputs and relays](#) MSVPP commands on page 72, which activate or are issued by the these ports.

### NOTES:

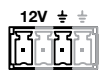
- By factory default, automatic reporting of Digital Inputs 1 through 4 is disabled. To enable reporting, use the [Set input trigger on](#) MSVPP command (defined on page 72).
- Use a single cable for all inputs and relay ports and snap one of the included ferrite beads on the cable, as close to the unit as possible.

- I Digital Inputs 1 through 4** — These inputs allow the media player to sense a discrete signal, such as change in a switch position. Connect the desired discrete input line to the unit via two poles (+ and –) of a 3.5 mm 4-pole captive screw connector (see [Optically-isolated Digital Inputs](#), on page 94, for an illustration of a typical input connection).



The media player issues an MSVPP message on Remote port 1 when it detects a change of state on the digital inputs, prompting the connected device to respond as appropriate.

- J Power** — This port provides +12 VDC power at up to 1.8 A, typically for use with Digital Inputs 1 through 4 (item **I**) above. The power is internally protected. Connect the device requiring power to two poles (12V and ground [⊕]) of a 3.5 mm 4-pole captive screw connector.

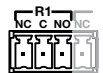


**⚠ WARNING:** **Electric shock hazard** — 12 VDC is always present on this port when the media player is powered on. Ensure that no conductive material comes into contact with these terminals.

**AVERTISSEMENT :** **Risque de choc électrique** — Ce port fournit constamment une tension de 12 Vcc lorsque le lecteur média est en marche. Veillez à ce qu'aucun matériau conducteur n'entre en contact avec ces terminaux.

A typical use of this voltage is shown in [Optically-isolated Digital Inputs](#).

- K Relay Outputs** — These ports are four sets of NO and NC relay contacts. Connect an external device that you want to be able to switch on or off to the player via three poles (normally closed [NC], common [C], and normally open [NO]) of the 3.5 mm 4-pole captive screw connectors.



**NOTE:** Relays R1 and R4 each are on a single captive screw connector. Relays R2 and R3 each span two captive screw connectors.

The player toggles the relay on or off in response to an MSVPP signal from the device connected on Remote port 1 or either LAN port, see [Relay Contacts](#) on page 95.

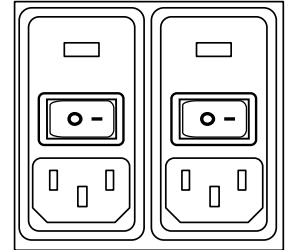
## Power

**NOTE:** Although the unit performs reliably while running on a single AC power supply, doing so defeats the dual-redundant power supply feature.

**L Dual Redundant AC Power Input connectors** —

Connect a standard IEC power cord between one rear panel AC Power Input connector and a 100 to 240 VAC, 50-60 Hz power source.

Connect a second IEC power cord between the remaining AC Power Input connector and either an uninterruptible power source or a power source that is completely independent from the primary power source.



**⚠ WARNING:** **Electric shock hazard** — Physically disconnect both power cables from the player before opening the case for servicing.

**AVERTISSEMENT :** **Risque de choc électrique** — Déconnectez les deux câbles d'alimentation du lecteur avant d'ouvrir le boîtier en cas de maintenance.

**M Dual Redundant AC Power Input switches** — Toggle both AC Power Input switches to the on (I) position.

# Operation

This section describes the front panel operation of the JMP 9600, including:

- [Definitions](#)
- [Front Panel Controls and Indicators](#)
- [Menu System Overview](#)

## Definitions

The following terms, which apply to Extron media players, are used throughout this manual:

- **Digital Cinema Package (DCP)** — A folder that contains all of the files necessary for the JMP 9600 to play a presentation. This folder can include reel files (video images and audio data), the composition playlist (CPL), and the associated packing list and asset map. All of these file types are detailed below and are encoded to the Digital Cinema Initiatives (DCI) specification.

### NOTES:

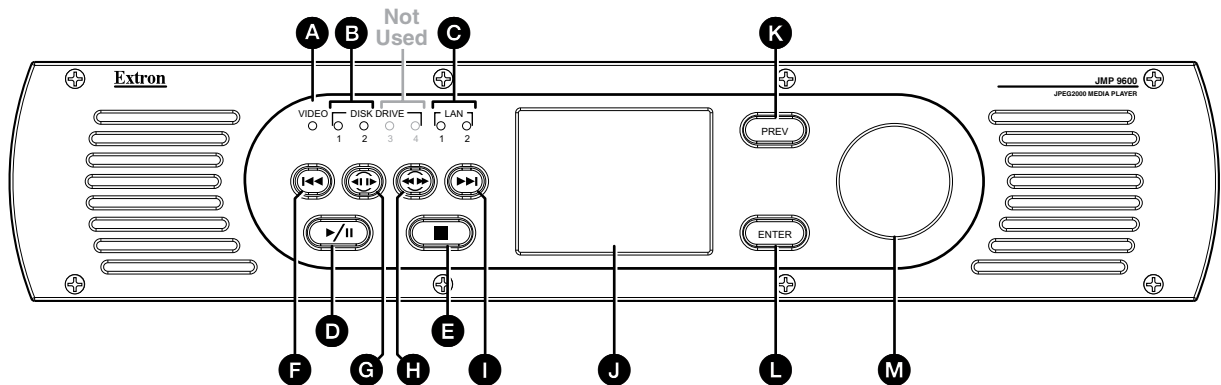
- Although a DCP may also contain subtitle files, the JMP 9600 does not supported them.
  - All of the files within the DCP are automatically created when using the Extron JPEG 2000 Encoding Software (see [Encoding Guidelines](#) on page 96).
- **Reel** — A reel is a file that contains *either* compressed video content *or* uncompressed audio content. These files have the \*.mxf file extension, for example *ree1\_1\_video.mxf*. Reels are typically 10 to 20 minutes long, so a larger presentation may consist of multiple video and audio reels.
  - **Composition Playlist (CPL)** — An xm1 file that contains all of the information on how the files for a specific presentation should be played back, including the filenames and locations of the reels and how the audio is synchronized with the picture. The CPL can specify one video reel and one audio reel or multiple reels of both types.
  - **Clip** — The video and audio material content specified by a CPL file. The terms “clip” and “DCP” can be used interchangeably.
  - **Asset map file** — A file that is similar to the CPL file, but the asset map also lists the frame rate and duration of the clip.
  - **Packing list file** — A file that contains information and identification about each of the individual files that are delivered in a DCP.
  - **Playlist** — An xm1 file that can be the name of a single DCP presentation (a clip) or a sequential list of clips. Playlists must contain DCPs that are all of the same resolution, color space, frame rate, and number of audio channels to load successfully in the JMP 9600.

**NOTE:** Pay attention to the difference between a “playlist” and a “composition playlist.”

- **Pre-roll period** — A programmable interval before the presentation starts. As an example, pre-roll might allow audience members to take their seats after an announcement that the show has begun.
- **Post-roll period** — A programmable interval after the presentation ends. Select the Stop At option to set a stop point for the timecode and for the screen to go black. As an example, post-roll might allow the house lights to gradually brighten. Post-roll is also sometimes known as “run-on.”

## Front Panel Controls and Indicators

All JMP 9600 controls and indicators are on the front panel (see figure 8).



**Figure 8.** Front Panel, JMP 9600 Media player

- |  |  |
|--|--|
| <b>A</b> Video LED (see below)   | <b>H</b> Shuttle mode (◀▶) button          |
| <b>B</b> Disk Drive 1 and 2 LEDs                                       | <b>I</b> Next clip (▶▶) button             |
| <b>C</b> LAN 1 and LAN 2 LEDs  | <b>J</b> LCD screen and confidence monitor |
| <b>D</b> Play/Pause (▶/  ) button (see the <a href="#">next page</a> ) | <b>K</b> Previous button                   |
| <b>E</b> Stop (■) button   | <b>L</b> Enter button                      |
| <b>F</b> Previous clip (◀◀) button                                     | <b>M</b> Encoder knob                      |
| <b>G</b> Frame mode (◀▶) button  |  |

### Status LEDs

- A Video LED** — Blinks when the player is in Play mode or Pause mode.
- B Disk Drive 1 and 2 LEDs** — Flash when the associated hard disk is active. When you are transferring a large file or playing a high bit rate file the LEDs flash more frequently. It is common, under heavy load, for the LEDs to appear to be continuously lit.

**NOTE:** The Disk 3 and Disk 4 LEDs are reserved for possible future applications and are not currently implemented.

- D LAN 1 and 2 LEDs** — Flash when the associated Ethernet connection is active. When you are transferring a large file the LEDs flash more frequently. It is not uncommon, under heavy load, for the LEDs to appear to be continuously lit.



## Transport Buttons

- D Play/Pause (▶/⏸) button** (see [figure 8](#) on the previous page)— Press to start the currently selected CPL or clip file or pause a currently playing presentation while leaving the image displayed.
- E Stop (■) button** — Press to stop the currently playing presentation. When you press Play again, the presentation starts over from the beginning.
- F Previous clip (◀◀) button** — Press to load the previous CPL or clip file in the playlist. The button has no function if no playlist is loaded (using the menu controls).
- G Frame mode (⏮) button** — Press and then rotate the encoder knob (item **M**, below) to step frame-by-frame through the CPL or clip file while the player is in play mode.
- H Shuttle mode (⏮) button** — Press and then rotate the encoder knob (item **M**, below) to “shuttle” backwards and forwards through the CPL or clip file, at a rate controlled by the encoder knob.

**NOTE:** The audio portion of the clip is active only when the playback speed is +1.0 (normal forward speed).

- I Next clip (▶▶) button** — Press to load the next CPL or clip file in the playlist. The button has no function if no playlist is loaded (using the menu controls).

## LCD and Menu Controls

- J LCD screen and confidence monitor** — Displays the user interface for local control. The screen can also display a presentation as the player outputs it on its video output connectors. The alpha-blend feature allows you to display a mix of the video that is playing and the user interface simultaneously.
- K Previous button** — Press to return to the previously displayed menu or page.
- L Enter button** — Press to initiate or activate a selected function.

## Encoder knob

- M Encoder knob** — Rotate to navigate the menu system. Rotate this knob when frame mode and shuttle mode are selected to operate those features.

# Menu System Overview

## Power-on Sequence

Plug either or both power cords into power sources and turn on (I) one or both rear panel power switches. When AC power is applied, the media player performs a self-test that blinks all of the front panel buttons several times and then displays the LCD start-up screen while it continues to load the operating system (see figure 9). After approximately 40 seconds, the LCD window displays the main menu screen. An error-free power-up self-test sequence leaves all of the buttons except Stop unlit and the LCD window displaying the main menu.



Figure 9. LCD Power up Screen and Main Menu

## Menu System Flow

Figure 10 shows a flowchart of the main menu system.

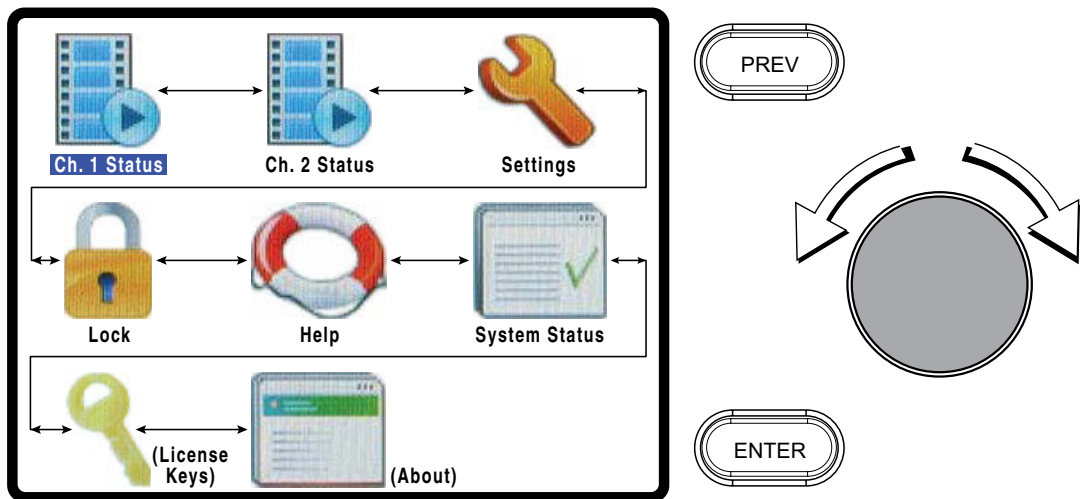


Figure 10. Main Menu Flowchart

**NOTE:** The elements in figure 10 are not drawn to scale.

**Encoder knob** — Rotate to navigate through the main menu and submenu options.

**Enter button** — Press to activate the highlighted function.

**Previous button** — Press to “back up” to the previously displayed menu or page.

**NOTES:**

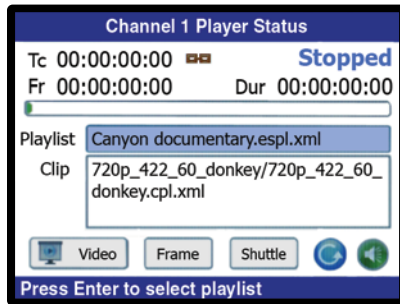
- You cannot back up past the main menu screen shown in figure 10.
- In the following procedures, “highlight” means a blue fill, unless otherwise described.

## Channel status menus

### NOTES:

- Channel 2 Status is displayed in the main menu (figure 10) and available for selection only in 2-channel output mode and 2-channel locked output mode, both of which can be selected in the **Settings > Video submenu** on page 32.
- The Channel 1 Status and Channel 2 Status are identical, except where noted.

Figure 11 shows an overview of the Channel 1 Status screen and the available settings.



**Figure 11. Channel Status Menu**

The LCD shows the current state of the channel 1, including the loaded clip and playlist (if applicable) and whether the presentation is playing, paused or stopped. The screen also shows two counters and a static display that display the time of specific functions of the time as *hour:min:sec:frame*:

**Tc (Timecode)** — Shows the current point in time within the loaded program. The Timecode counter includes the pre-roll, roll, and post-roll periods.

**Lock indicator (🔒)** — Indicates the video that is playing is synchronized with an external genlock signal.

**Fr (Frame)** — Shows the current point in time within the currently loaded playlist or clip; the roll period only.

**Dur (Duration)** — Shows the entire run-time of the currently loaded playlist or clip. This is a static display only.

**NOTE:** The *frame* field of the Tc and Fr counters is not updated during playback; only the *hour:min:sec* fields are active. The Tc and Fr show the frame number when paused, in Frame mode, or in shuttle mode.

## Playlist and Clip fields

These fields display whether a playlist or clip is loaded. Empty fields indicate that no playlist or clip is loaded. They also are used with menu controls to load a playlist or clip.

Select and load a playlist or clip as follows:

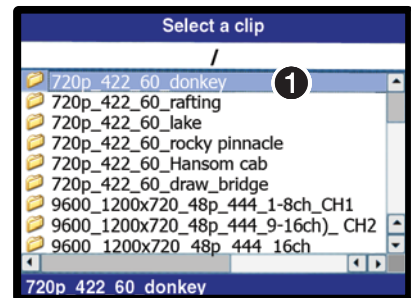
### NOTES:

- You must have created one or more playlists using the HTML pages before any are available for selection to select (see [Playlist Editor Page](#) on page 44).
- Ensure that the media player is configured for 1-channel output before attempting to load 4:4:4 chroma subsampled content. If the player is configured for 2-channel output mode and 2-channel locked output mode, these formats will not load. Use the [Settings > Video submenu](#) on page 32 to check the video mode and change it if necessary.
- In 2-channel locked output mode, the files for the two channels must have the same number of frames, resolution, bit depth, and number of audio channel and must use 4:2:2 chroma subsampling. If these conditions are not met, the files will not load.
- The player must be correctly configured for the clip or playlist that you select using the [Settings > Video submenu](#) on page 32, or else the player does not load the selected clip or playlist and the LCD reports ERROR.
- If you cannot get a clip to load, see [Setting the clip or playlist to autoplay and view clip info](#) on page 43 to view the properties of the clip, which can help reveal the problem.
- If you load a new clip with a different resolution and frame rate than the currently loaded clip, it can take up to 4 seconds before it is ready to play.

1. Rotate the encoder knob as necessary to highlight the Playlist `Canyon documentary.espl.xml` field or Clip field as shown at right.
2. Press **Enter**. The **Select a playlist** screen (a list of playlist files) or **Select a clip** folder screen (a list of DCP folders) appears (see figure 12).



Select a playlist



Select a clip

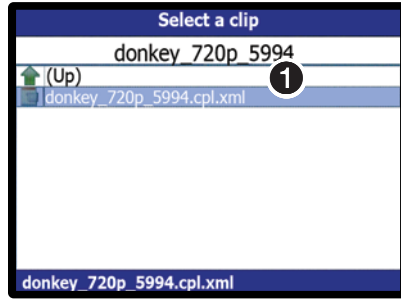
**Figure 12. Select a Playlist Screen and Select a Clip Folder Screen**

3. Rotate the encoder knob as necessary to highlight the desired playlist file or clip folder (see figure 12, **A**).
4. Press **Enter**.

**When loading a playlist** — The LCD returns to the Channel Status screen with the playlist selected in step 3 shown in the Playlist field. The Play/Pause button flashes. **The procedure is complete.**

5. **When loading a clip** — The LCD displays the second step of the **Select a clip** file screen (see figure 13). **Proceed to step 6.**

donkey\_720p\_5994.cpl.xml



**Figure 13. Select a Clip File Screen**

6. Rotate the encoder knob as necessary to highlight the desired clip file (see figure 13, **A**).
7. Press **Enter**. The LCD returns to the **Channel Status** screen with the clip selected in step 5 shown in the clip field. The **Play/Pause** button lights. The procedure is complete.

### Video selection

8. The LCD can show the control display, the video playback display, or both simultaneously (an alpha blend). To fully display the video playback (without an alpha blend), rotate the encoder knob to highlight the **Video** selection and press **Enter**.



To return to the channel status display or alpha blend, press **Previous**.

### Frame selection

In Frame mode, you can step frame-by-frame through the selected CPL or clip file while the player is playing video. To turn Frame mode on, rotate the encoder knob to highlight the **Frame** selection and press **Enter**.



Rotate the encoder knob to the left or right to step forward or backwards through the clip frame by frame.

**NOTE:** This function is identical to selecting the front panel **Frame mode** button (⏮).

To return to the Channel status display, press **Previous**.

### Shuttle selection

In Shuttle mode, you can “shuttle” backwards and forwards through the selected playlist or clip file, at a rate controlled by the encoder knob. To turn Shuttle mode on, rotate the encoder knob to highlight the **Shuttle** selection and press **Enter**.



Rotate the encoder knob to the left or right to fast forward or reverse through the clip at up to 16 times regular playback speed. Use the encoder knob to return the shuttle indicator to the middle (vertical) position to play the file at normal speed.

**NOTES:**

- This function is identical to selecting the front panel **Shuttle mode** button (⏮).
- The audio portion of the clip is active only when the playback speed is +1.0 (normal forward speed).

To return to the Channel status display, press **Previous**.

### Loop selection

In Loop mode, the player runs the selected playlist or clip file in a continuous loop, automatically starting the presentation over again once it ends. To toggle Loop mode on and off, rotate the encoder knob to highlight (box) the **Loop** selection and press **Enter**.



### Mute selection

To toggle audio mute on and off, rotate the encoder knob to highlight (box) the **Mute** selection and press **Enter**. Mute disables the audio output from all 16 audio channels when the media player is in 1-channel mode. Mute disables audio channels 1 through 8 for video channel 1 and audio channels 9 through 16 for video channel 2 when the media player is in 2-channel or 2-channel locked mode.



**NOTE:** Audio is unmuted (is output) when power is cycled.

### Settings menu

The **Settings** menu (see figure 14) provides submenus to control the behavior of the player and how it interacts with the connected audio/video systems and the network. Rotate the encoder knob to highlight the desired submenu and press **Enter**.



**Figure 14. Settings Menu**

**NOTE:** Figure 14 is not an accurate image of the **Settings** menu. The figure is elongated to show all selections in the menu. On the media player, the **Video** selection is not visible until you rotate the Encoder knob to scroll down the menu.

To return to the **Settings** menu from any of its submenus, press **Previous**.



## Audio submenu

The Audio submenu (see figure 15) provides controls to set the volume and audio delay variables for the one or two output groups.

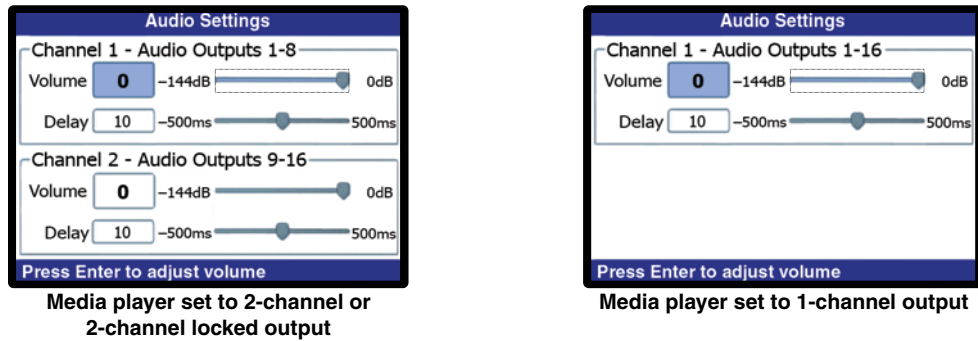


Figure 15. Audio Submenu

**NOTE:** The image shown on the left in figure 15 shows the audio menu when the media player is set to either 2-channel or 2-channel locked output. The submenu on the right is 1-channel locked output. Use the [Settings > Video submenu](#) on page 32 to select the mode.

Adjust the values as follows:

1. Rotate the encoder knob to highlight the selected variable.
2. Press **Enter**.
3. Rotate the encoder knob to change the selected variable to the desired value.
4. Press **Enter** to enter the variable and “jump” the selection highlight to the next variable.

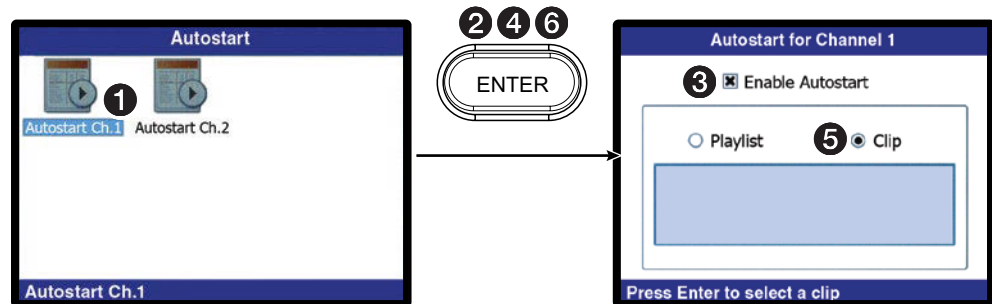
## Autostart submenu

### NOTES:

- The player must be correctly configured for the clip or playlist that you select using the **Settings > Video submenu** on page 32, or else the player does not load the selected clip or playlist and the LCD reports ERROR.
- If you cannot get a clip to load, see **Setting the clip or playlist to autoplay and view clip info** on page 43 to view the properties of the clip, which can help reveal the problem.

The Autostart feature sets a specified clip or playlist to automatically start playing for channel 1 or channel 2 whenever the media player powers up and has loaded its operating system. The Autostart submenu provides controls to select a clip or playlist and enable or disable autostart. Enable an autostart as follows:

1. Rotate the encoder knob to highlight the channel (1 or 2) that you want to autostart (see figure 16, ❶).

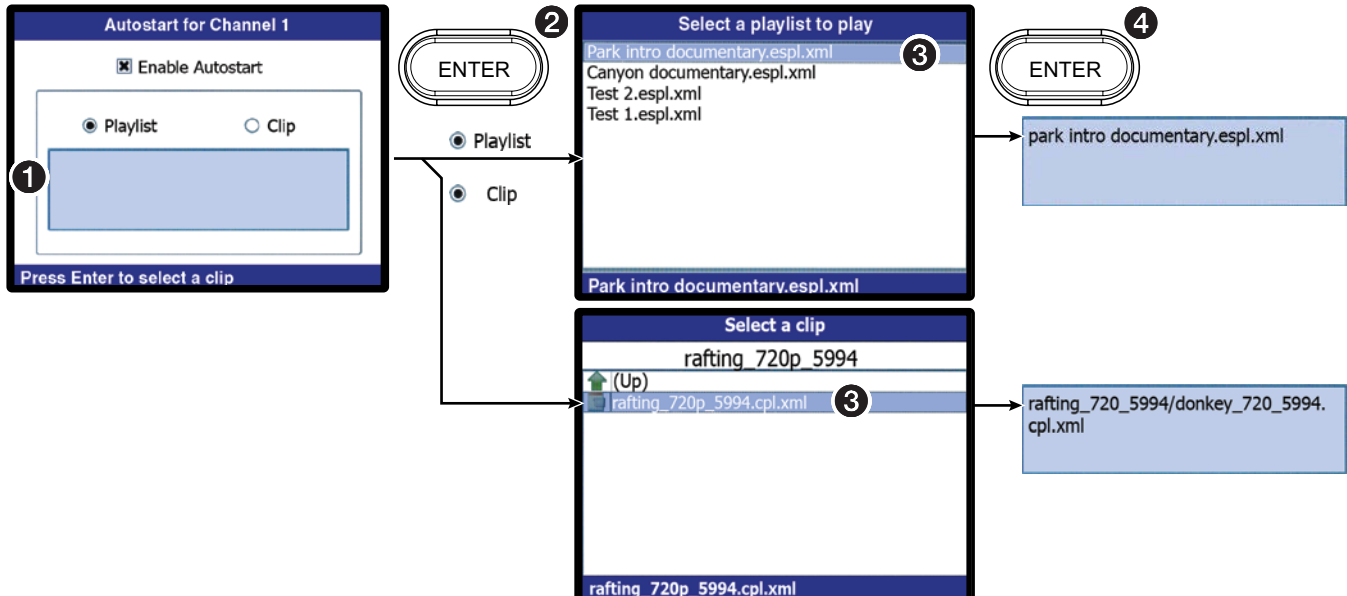


**Figure 16. Autostart Submenu Flowchart**

2. Press **Enter** (❷). The enable screen appears.
3. Rotate the encoder to highlight the **Enable Autostart** checkbox (❸).
4. Press **Enter** (❹).
5. Rotate the encoder to highlight either **Playlist** or **Clip** radio button (❺).
6. Press **Enter** (❻). The radio button is selected.

**NOTE:** If a clip or playlist is displayed in the field beneath the radio buttons and you are satisfied with it, the process is complete. Press **Previous** twice to return to the **Settings** submenu.

- To select or change the clip or playlist that is displayed in the field beneath the radio buttons, rotate the encoder button to highlight the field (see figure 17, ①).

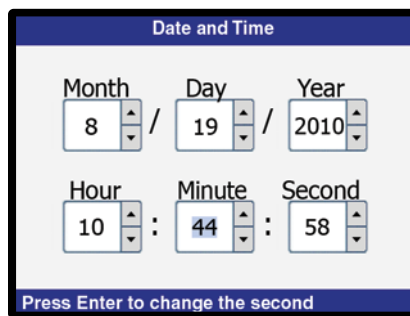


**Figure 17. Select a Clip File Screen**

- Press **Enter** (②). The field displays a list of available playlists or clips, depending on the selection made in step 5.
- Rotate the encoder knob as necessary to highlight the desired playlist or clip file (③).
- Press **Enter** (④). The field displays the selected playlist or clip file.
- Press **Previous** twice to return to the **Settings** submenu.

### **Date and Time submenu**

The Date and Time submenu provides a tool to change the real time clock set in the media player (see figure 18).



**Figure 18. Date and Time Submenu**

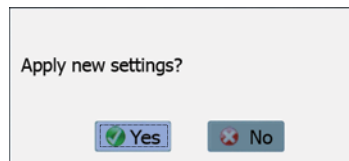
**NOTE:** The media player does not automatically support Daylight Saving Time. Use this submenu to account for Daylight Saving Time if desired.

Adjust the date and time as follows:

1. Rotate the encoder knob to highlight the first variable to be changed.

**NOTE:** Rotating the encoder knob selects through the variables in the following order: Month > Day > Year > Hour > Minute > Second >Month ... .

2. Press **Enter**.
3. Rotate the encoder to change the selected variable to the desired value.
4. Press **Enter**. The highlight jumps to the next variable.
5. Repeat steps 1 through 4 as necessary to change all variables.
6. Press **Preview** to exit the most recently changed value. The player prompts you to see if you really want to change the value (see figure 19).



**Figure 19. Apply new settings? Prompt**

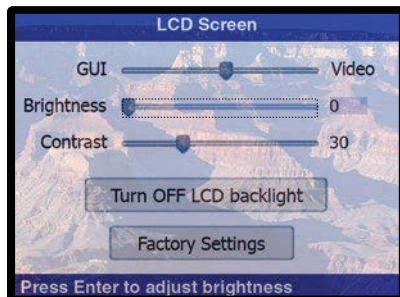
7. Rotate the encoder as necessary to highlight either **Yes** or **No**.

**NOTE:** If you do not perform steps 7 and 8, the player abandons the changes and displays the **Settings** menu after approximately 30 minutes.

8. Press **Enter**. The screen displays the **Settings** menu.

### **LCD submenu**

The LCD submenu provides a tool to change how the LCD displays information (see figure 20).



**Figure 20. LCD Submenu**

**NOTE:** Figure 20 shows the display with the video playback overlaid on top of the GUI control. If no clip or playlist is selected to play or if video is stopped (the stop button [■] is lit), the GUI/Video control is not available and the no video playback is overlaid on top of the GUI.

**Slider-type controls** — The **GUI/Video** control adjusts the mix of the video image and the graphical user interface (the “alpha blend”). The **Brightness** and **Contrast** controls function the same as similar controls on any video monitor. Adjust the display controls as follows:

1. Rotate the encoder to highlight the desired variable.
2. Press **Enter**.
3. Rotate the Encoder knob to adjust the setting:

**GUI/Video** — All the way to the left displays 100% of the GUI control. All the way to the right displays 100% of the video image.

**Brightness** — Left (0) is darker, right (100) is brighter. The default setting is 0.

**Contrast** — Left (0) is maximum contrast, right (100) is minimum contrast. The default setting is 30.

**NOTE:** The adjustments take effect as you make them in step 3.

4. Press **Enter** to confirm the setting and continue to the next parameter.

— or —

Press **Previous** to confirm the setting and return to the previous menu.

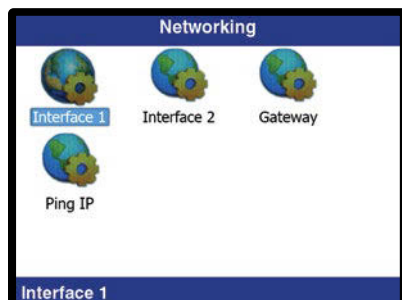
**Button-type controls** — The **Turn OFF LCD backlight** control turns the LCD off. This can be helpful to reduce distraction when the player is in the same room as the presentation. The **Factory Settings** control returns the LCD settings to their factory defaults. Operate these controls as follows:

1. Rotate the encoder to highlight the desired control.
2. Press **Enter**.

**NOTE:** Turn the LCD back on by pressing either the **Enter**, **Previous**, **Frame mode** (⏪), or **Shuttle mode** (⏩) button or by cycling power.

### Networking submenu

The Networking submenu (see figure 21) provides tools to set up the media player for use in a LAN. Use this submenu to access and change all of the port settings for both Ethernet connections of the media player (see **Network parameters** and **figure 22**, on the next page) and to ping another device on the network (see **Ping function** and **figure 23**, on page 29).



**Figure 21. Networking Submenu**

**NOTE:** Two LAN ports allow the media player to reside on two different subnets simultaneously.

## Network parameters —

The **IP** field contains the IP address of one the two the media player ports.

The **Netmask** field is used to determine whether the media player is on the same subnet as the controlling PC when you are subnetting (see [Subnetting — A Primer](#) on page 109).

The **Gateway IP Address** field identifies the address if you choose to use the media player as a gateway to another device that is not on the same subnet.

Valid addresses for all fields above consist of four 1-, 2-, or 3-digit numeric subfields, properly called octets, separated by dots (periods). Each field can be numbered from 000 through 255. Leading zeroes, up to 3 digits total per field, are optional.

The **Enable DHCP** checkbox directs the media player to obtain its IP address from a Dynamic Host Configuration Protocol (DHCP) server (if the network is DHCP capable). Contact the local system administrator to determine whether to use DHCP.

### NOTES:

- The factory default IP, netmask, and gateway addresses are as follows:

#### LAN 1:

IP address: 192.168.254.254      Netmask address: 255.255.0.0

#### LAN 2:

IP address: 192.168.254.253      Netmask address: 255.255.0.0

#### Both ports:

Gateway address: 0.0.0.0      DHCP: Off

- If these values conflict with other equipment at your installation, you can change the addresses to any valid value.
- Editing the settings for an Ethernet port on which you have an active connection can immediately disconnect the media player from the network.
- If DHCP is enabled, the IP address and Netmask settings are disabled but can be viewed from the front panel. Disable DHCP to change the IP address and Netmask settings.

Edit any of the network parameter settings as follows (see figure 22):

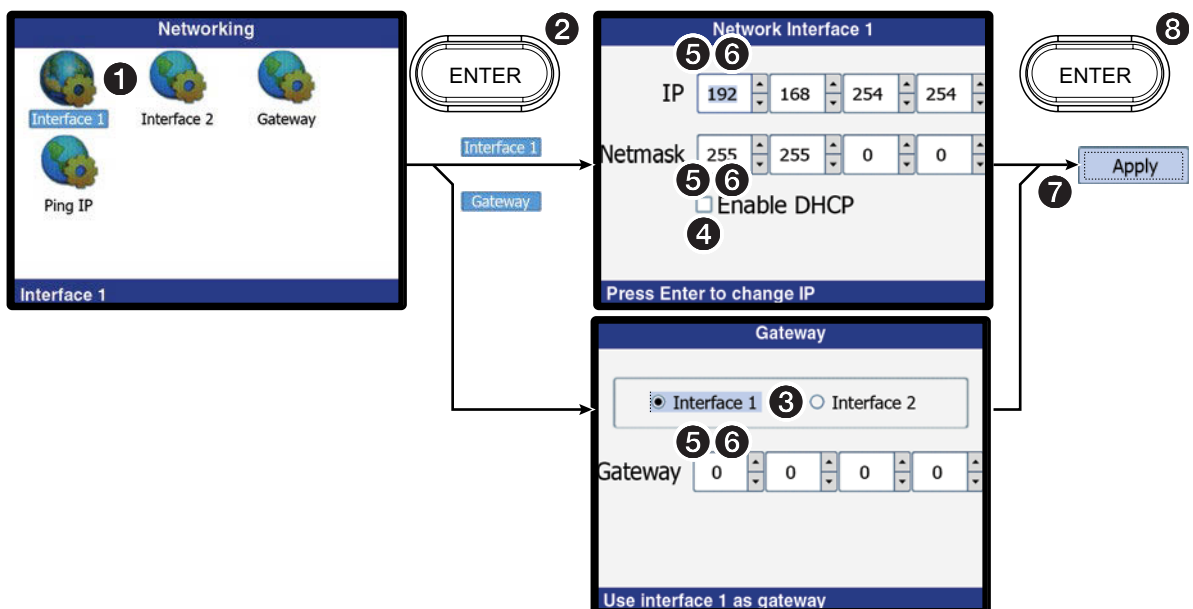


Figure 22. Networking Submenu and Network Parameters Settings

1. Rotate the encoder to highlight the selection for the value or setting to be change (see **figure 22, ①** on the previous page):

**IP address** — Interface 1 or 2, as applicable

**Netmask 1 or 2** — Interface 1 or 2, as applicable

**DHCP** — Interface 1 or 2, as applicable

**Gateway** — Gateway

2. Press **Enter** (②).

**NOTES:**

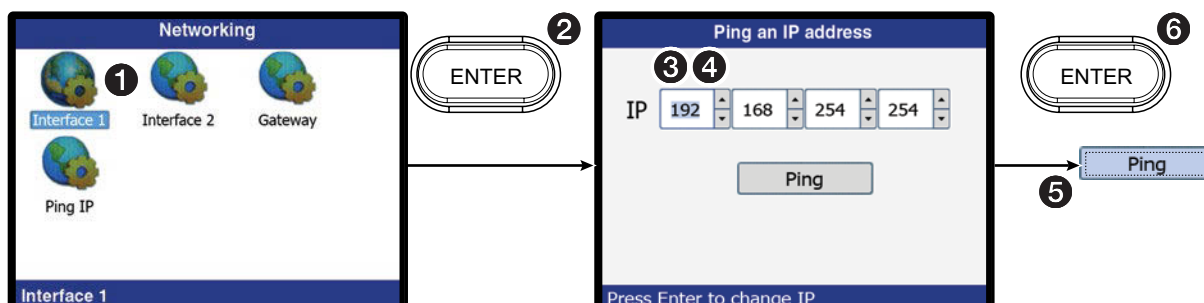
- If DHCP is enabled, the IP address and Netmask settings are disabled. Disable DHCP (steps 1, 2, 5, and 6) to change the IP address and Netmask settings.
- For a Gateway address, proceed to step 3.
- For DHCP, skip to step 5.
- For IP addresses and Netmask addresses, skip to step 9.

3. **For a Gateway address**, rotate the encoder as necessary to select the LAN port (Interface 1 or Interface 2) to use as a gateway (③).
4. **For a Gateway address**, press **Enter**. The **Apply** control appears in the LCD. Proceed to step 9.
5. **To toggle DHCP on or off**, rotate the encoder as necessary to highlight the **Enable DHCP** selection (④).
6. **To toggle DHCP on and off**, press **Enter**. The **Apply** control appears in the LCD.
7. If you enabled DHCP or you do not want to manually set the addresses, proceed to step 15.
8. To manually set addresses after disabling DHCP, proceed to step 9.
9. Rotate the encoder to highlight the first or next octet that needs to be changed (⑤).
10. Press **Enter**.
11. Rotate the encoder to change the selected octet to the desired value (⑥).
12. Press **Enter**. The highlight jumps to the next octet.
13. Repeat steps 9 through 12 as necessary to change all octets.
14. Press **Enter**.
15. Rotate the encoder as necessary to highlight the **Apply** control (⑦).
16. Press **Enter** (⑧).

### Ping function —

Use the Ping function to 'ping' another device on the network as follows:

1. Rotate the encoder to highlight the **Ping IP** selection (see ❶ on figure 23).



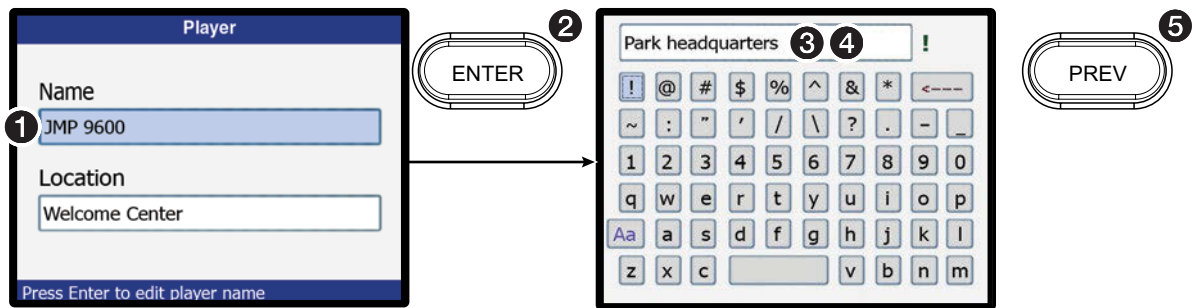
**Figure 23. Ping Function**

2. Press **Enter** (❷).
3. Rotate the encoder to highlight the first or next octet that needs to be changed (❸).
4. Press **Enter**.
5. Rotate the encoder to change the selected octet to the desired value (❹).
6. Press **Enter**. The highlight jumps to the next octet.
7. Repeat steps 3 through 6 as necessary to change all octets.
8. Press **Enter**.
9. Rotate the encoder as necessary to highlight the **Ping** control (❺).
10. Press **Enter** (❻).



## Player submenu

The Player submenu provides a tool to give the player a unique name and location (see figure 24).






**Figure 24. Player Submenu and Keyboard**

Customize the player as follows:

1. Rotate the encoder to highlight the identifier, either **Name** or **Location** (see figure 24, ❶).
2. Press **Enter** (❷). An alphanumeric keyboard screen appears.
3. Rotate the encoder to highlight the first or next character in the identifier (❸).

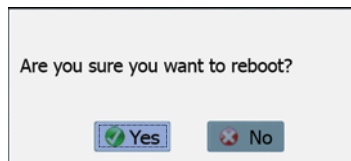
### NOTES:

-  is the back space key. Pressing **Enter** when this key is highlighted, erases the character to the left of the cursor.
-  is the Caps key. Pressing **Enter** when this key is highlighted, toggles the keyboard between uppercase and lowercase characters.
-  is the space key.

4. Press **Enter** (❹).
5. Repeat steps 3 and 4 until the name or location is spelled out.
6. Press **Previous** to save the value and return to the **Player** submenu (❺).
7. As desired, repeat steps 1 through 6 for the other identifier.

## Reboot submenu

The Reboot submenu (see figure 25) provides a prompt that allows you to reboot the media player without powering it down.



**Figure 25. Reboot? Prompt**

Reboot the player as follows:

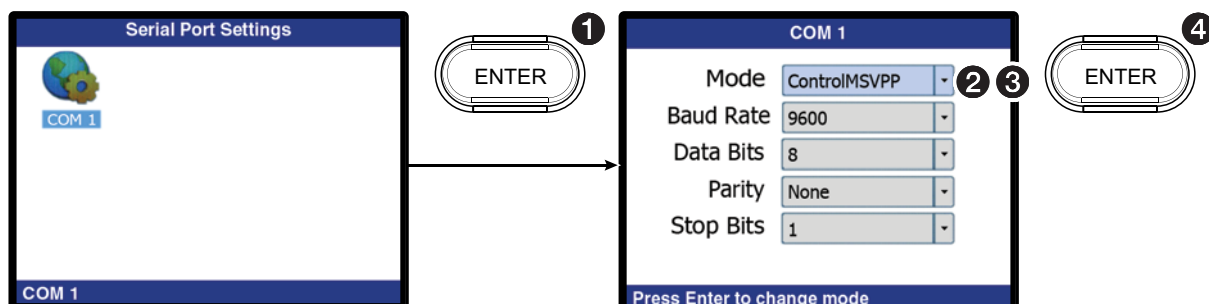
1. Rotate the encoder as necessary to highlight **Yes**. (Highlight **No** to abandon the reboot.)
2. Press **Enter**. The media player reboots.

## Serial Ports submenu

The Serial Ports submenu provides a tool to configure serial port Remote 1 (see figure 26, below).

### NOTES:

- Serial port Remote 1 can be set to ControlMSVPP (control the player), Passthrough (pass the signals through to a controlled device), or Disabled.
- **When you are using the Pass Through setting**, ensure that the Baud Rate, Parity, Data Bits and Stop Bit are set to match the device that you are controlling. Also, in your remote control program, set the IP port number to 4001 and the IP address to that of media player. When the port is in Pass Through mode, any TCP/IP control string that appears on port 4001 of the JMP 9600 is passed to the Remote 1 port and any strings on the port pass to port 4001.
- The media player can:
  - Operate at 300, 600, 1200, 1800, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 baud rates
  - Use 7 or 8 data bits
  - Use no parity, even parity, or odd parity.
  - Use 1 or 2 stop bits
- Serial port Remote 2 is for factory use only. The customer or end user cannot control the player via the Remote 2 port.



**Figure 26. Serial Ports Submenu**

Configure serial port Remote 1 as follows:

1. Press **Enter** (see ❶ on figure 26, above). The Com port 1 configuration screen appears.
2. Rotate the encoder to highlight the value to be set: Mode, Baud Rate, Data Bits, Parity, or Stop Bits (❷).
3. Press **Enter**.
4. Rotate the encoder to select the desired setting (❸). See the note above for available settings.
5. Press **Enter** (❹).

**NOTE:** The values are not changed if you do not press **Enter**.

6. Repeat steps 2 through 5 as necessary to change other configurable parameters.

## System Info selection

View a snapshot of the status of the connections and settings of the media player (see figure 27). Rotate the encoder to scroll to hidden parts of the display.

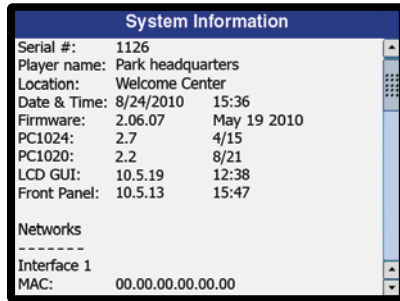


Figure 27. System Information Screen

## Video submenu

The Video submenu allows you to manage the video output settings and timing (see figure 28).

### NOTES:

- Analog Channel 2 is displayed in the Video submenu (see figure 28) and available for selection only in 2-channel output mode and 2-channel locked output mode, both of which can be selected in the Settings > Video > Mode selection (see figure 29, on the next page).
- The Analog Channel 1 and Analog Channel 2 are identical, except where noted.

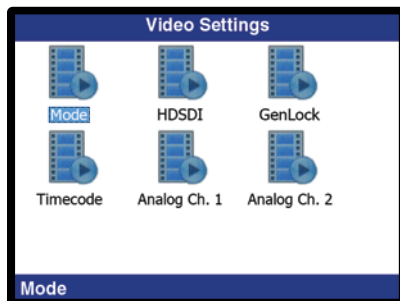


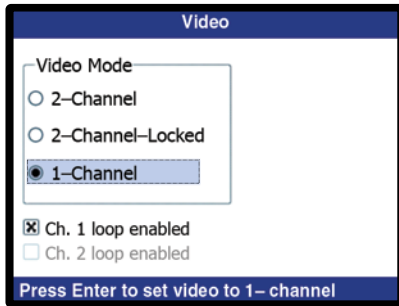
Figure 28. Video Submenu

Make selections as follows (see figure 29, on the next page):

1. Rotate the encoder to highlight the desired selection.
2. Press **Enter**.

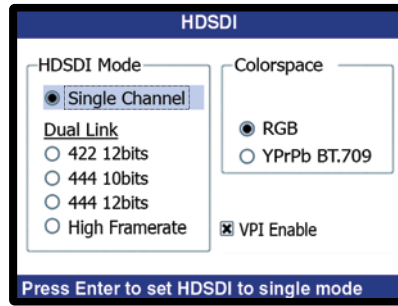
### NOTES:

- Figure 29 shows all of the possible options on the screens available in the video submenu. Depending on the video mode and the enabled licenses, some selections are not available on some screens.
- You can configure the media player signal combinations that are not defined within the video payload identifier specification (SMPTE 352); for example single channel, dual link HD-SDI operation with 12-bit 4:2:2 color sampling and the RGB color space. Some displays may not correctly display such an image or may require manual adjustment. The video payload identifier is updated correctly when the next valid SMPTE 352 format is selected.
- The selections on the following screens act like Microsoft® Windows® radio buttons; selecting one deselects the others in the same group.



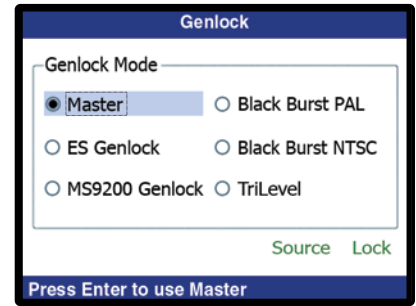
Mode Selection

- NOTES:**
- See page 3 for detailed descriptions of the functions of the modes.
  - The loop selections are independent of each other; you can select one, both, or neither.
  - **Ch. 2 loop enabled** is only available for selection when the switcher is in either 2-channel mode or 2-channel-locked mode.
  - In 2-channel or 2-channel locked mode, the channels share the same clock reference. Both channels operate at the same resolution and frame rate, which is set by the loaded clip or playlist. The parameters of the last clip loaded take precedence.



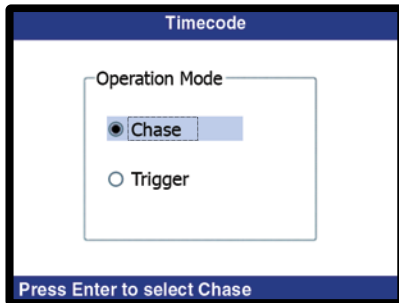
HDSDI Selection

- NOTES:**
- The High Framerate, available on the JMP 9600 2K model only, supports resolutions of up to 1920x1080 and 2048x1080 at 48, 50, and 60 Hz. The player must be set to 2-channel-locked mode to select this rate. See [High Frame Rate](#) on page 94 for more details on this mode.
  - When in 1-Channel mode and playing 4:4:4 content, all outputs are active (Channels 1 and 2). When in 1-Channel mode and playing 4:2:2 content, only Channel 1 outputs are active.
  - The player ships with the dual-link HD-SDI VPI tag on by default. You may choose to turn it off for backwards compatibility or legacy support.



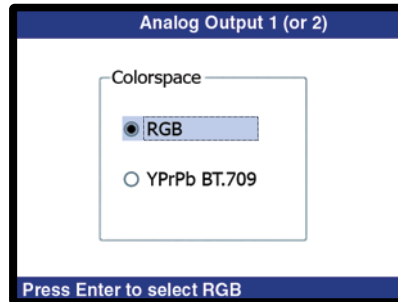
GenLock Selection

- NOTES:**
- **Master** — Send both ESGEN and MSGEN genlock as a generator.
  - **ES Genlock** — Receive ESGEN genlock as a receiver.
  - **MS9200 Genlock** — Receive MSGEN genlock as a receiver.
    - Only JMP 9600 2K units support ES genlock or MS genlock.
  - **Black Burst PAL, Black Burst NTSC, and Trilevel** — Receive a selected sync signal.
  - **Source indication** — Indicates the presence of an external genlock signal.
  - **Lock indication** — Indicates synchronization with an external genlock signal.
  - The media player monitors the sync inputs. If any selected sync signal is lost, the media player automatically defaults to **Master**.
  - Media players with serial numbers 9600-01 through 9600-50 support the Master, ES Genlock, and MS9200 Genlock sync types only (see [About menu](#) on page 37 to identify the serial number).



Timecode Selection

- NOTES:**
- **Chase** — Stay in sync with a received timecode signal.
  - **Trigger** — Respond to a specific Timecode and continue with no further response to the ongoing timecode signal.



Timecode Selection

Figure 29. Mode Selection

## Lock menu

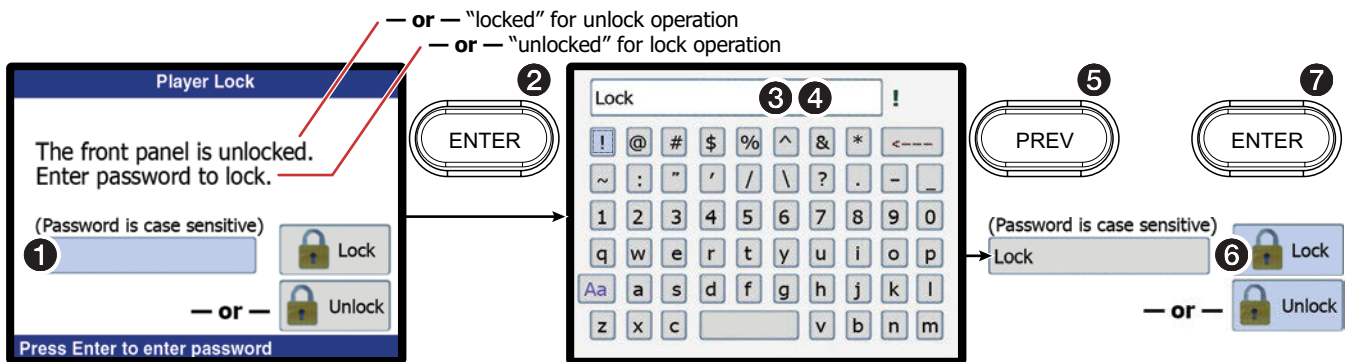
The Lock submenu allows the user to lock the front panel of the media player, limiting media player operation by unauthorized personnel. When the player is unlocked, all of the front panel functions are disabled except for the ability to unlock it. The player does not respond to another front panel operation. The lock is protected by a user-assigned password.

### NOTES:

- The media player can be controlled via MSVPP commands and the HTML pages when the front panel is locked.
- The locally-assigned panel lock password is separate from the factory-set internet password.

Toggle the front panel lock on and off as follows:




1. Rotate the encoder to highlight the text window (see ❶ in figure 30).



**Figure 30. Lock and Unlock Operation**

2. Press **Enter** (❷). An alphanumeric keyboard opens.
3. Rotate the encoder to highlight the first or next character in the password (❸).

### NOTES:

-  is the back space key. Pressing **Enter** when this key is highlighted, causes erases the character to the left of the cursor.
-  is the Caps key. Pressing **Enter** when this key is highlighted, toggles the keyboard between uppercase and lowercase characters. **Passwords ARE case sensitive.**
-  is the space key.

4. Press **Enter** (❹).
5. Repeat steps 3 and 4 until the password is spelled out.
6. Press **Previous** to return to the Lock or UnLock submenu (❺).
7. Rotate the encoder to highlight the Lock or UnLock selection (❻).
8. Press **Enter** (❼).

**NOTE:** If you are unlocking the front panel and if the password is incorrect, the media player reports "Incorrect password!" Repeat steps 1 through 8.

## Help screen

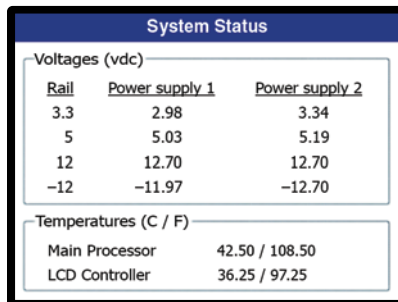
View contact information for Extron (see figure 31).



**Figure 31. Help Screen**

## System Status screen

View voltage and temperature information within the media player (see figure 32).



The screenshot shows a window titled "System Status" with two sections: "Voltages (vdc)" and "Temperatures (C / F)".

Rail	Power supply 1	Power supply 2
3.3	2.98	3.34
5	5.03	5.19
12	12.70	12.70
-12	-11.97	-12.70

Component	Temperature (C / F)
Main Processor	42.50 / 108.50
LCD Controller	36.25 / 97.25

**Figure 32. System Status Screen**

Voltages should be in the following ranges to ensure optimum operation:

- **3.3 V:** +3.2 to +3.4 V
- **5.0 V:** +4.75 to +5.5 V
- **12.0 V:** +12 to +13 V
- **-12.0 V:** -12 to -13 V

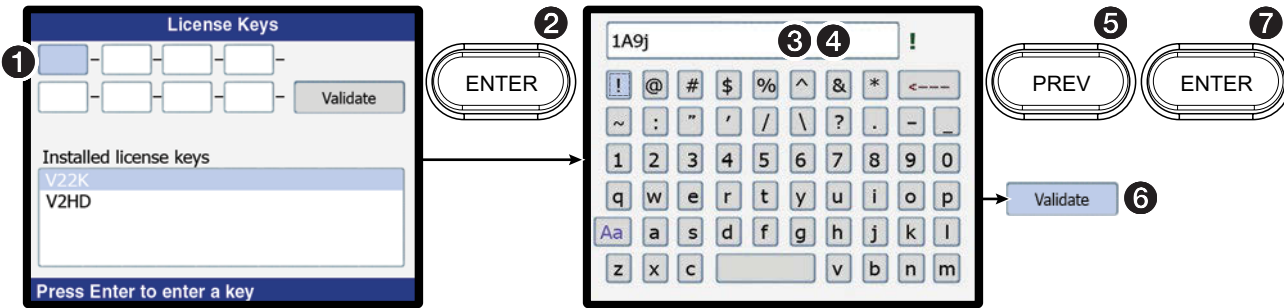
Temperatures above 85 °C (185 °F) indicate an equipment cooling problem. See [Troubleshooting a High Temperature](#) on page 104.

## License Keys menu

The License Keys submenu allows the user to enter an acquired product license, unlocking the capabilities supported by that key.

Install a license as follows:




1. Obtain the license key from Extron.
1. Rotate the encoder to the first field in the key (see ❶ in figure 33).



**Figure 33. Licenses Operation**

2. Press **Enter** (❷). An alphanumeric keyboard opens.
3. Rotate the encoder to highlight the first or next character in the license key (❸).

### NOTES:

-  is the back space key. Pressing **Enter** when this key is highlighted, causes erases the character to the left of the cursor.
-  is the Caps key. Pressing **Enter** when this key is highlighted, toggles the keyboard between uppercase and lowercase characters. **License keys ARE case sensitive.**
-  is the space key.

4. Press **Enter** (❹).
5. Repeat steps 4 and 5 until the four characters of that license key field are spelled out.
6. Press **Previous** to return to the License Key submenu (❺).
7. Repeat steps 2 through 7 for each field of the license key.
8. Rotate the encoder to highlight the Validate selection (❻).
9. Press **Enter** (❼).

## About menu

View the serial number of the player and the revision levels of system elements (see figure 34).

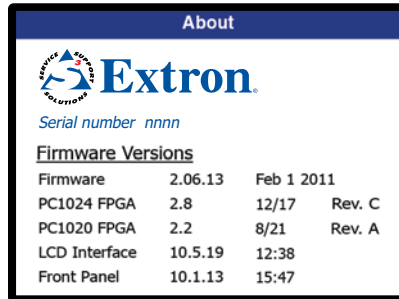


Figure 34. About Screen

### NOTES:

- The revision levels shown in figure 34 are examples only.
- The media player must run firmware version 2.06.07 or newer. If you have an older version, update the firmware to ensure proper operation (see [Data Transfer and Firmware Upgrade](#) on page 78 in the “Detailed Sytem Interaction“ section).

## Play a Presentation

Play a presentation as follows:

1. Rotate the encoder to highlight the **Ch. 1 Status** selection or **Ch. 2 Status** selection (depending on which channel you want to output the video).
2. Press **Enter**. The selected Channel Status menu opens.
3. Select and load a playlist as described in [Playlist and Clip fields](#) on page 19. The Play/Pause (▶/||) button lights.

**NOTE:** If you load a new clip with a different resolution and frame rate than the currently loaded clip, it can take up to 4 seconds before it is ready to play.

4. Press the **Play/Pause** (▶/||) button to start playing the file. The LCD screen displays a progress-bar as the clip runs. The video output appears on the connected display system.

**NOTE:** If you want the JMP 9600 LCD to fully display the video that is playing (rather than a blend of the video and the control display), rotate the encoder knob to highlight the Video Mode icon (Video) and press **Enter**.

Press **Previous** to return to the Channel Status menu or the blended display.



# HTML Operation

This section describes the operation of the JMP 9600 Media Player using its embedded HTML pages, including:

- [Setup Functions](#)
- [Opening the Embedded HTML Pages](#)
- [Player Control Page](#)
- [Playlist Editor Page](#)

## Setup Functions

The player can be controlled and operated through either LAN port, connected via a LAN or WAN, using a web browser such as Microsoft® Internet Explorer®. The display of the player status or operation has the appearance of web pages. The following factory-installed HTML pages and dialog boxes are available on the media player and cannot be erased or overwritten.

- **Player Control page** — See [figure 35](#), on the next page. Controls the transport, similar to as on a VTR and also shows properties associated with specific clips and playlists. This is the default startup page.
- **Playlist Editor page** — See [figure 40](#), on page 44. Manages playlists and clip file, manages clip-specific Timecode settings.
- **Setup dialog boxes** — Available from the Player Control page (see [figure 47](#), on page 47). A palette of dialog boxes that manages the player setup and configuration and its interaction with the network system.
- **MSVPP page** — A stand-alone HTML page, not linked to the pages and the menu of dialog boxes listed above, that provides an easy-to-use tool for entering MSVPP commands. This page is described in the “Programming Guide” section (see [Opening the embedded HTML MSVPP page](#) on page 57).

**NOTE:** If your Ethernet connection to the matrix player is unstable, try turning off the proxy server in your web browser. In Internet Explorer, click **Tools > Internet Options > Connections > LAN Settings**, uncheck the **Use a proxy server...** box, and then click **OK**.

## Opening the Embedded HTML Pages

Access the player using HTML pages as follows:

1. Start the web browser program.
2. Click in the **Address** field of the browser.
3. Enter the IP address of the connected port in the Address field of the browser.

### NOTES:

- If the local system administrators have not changed the value, the factory-specified default IP addresses are as follows:

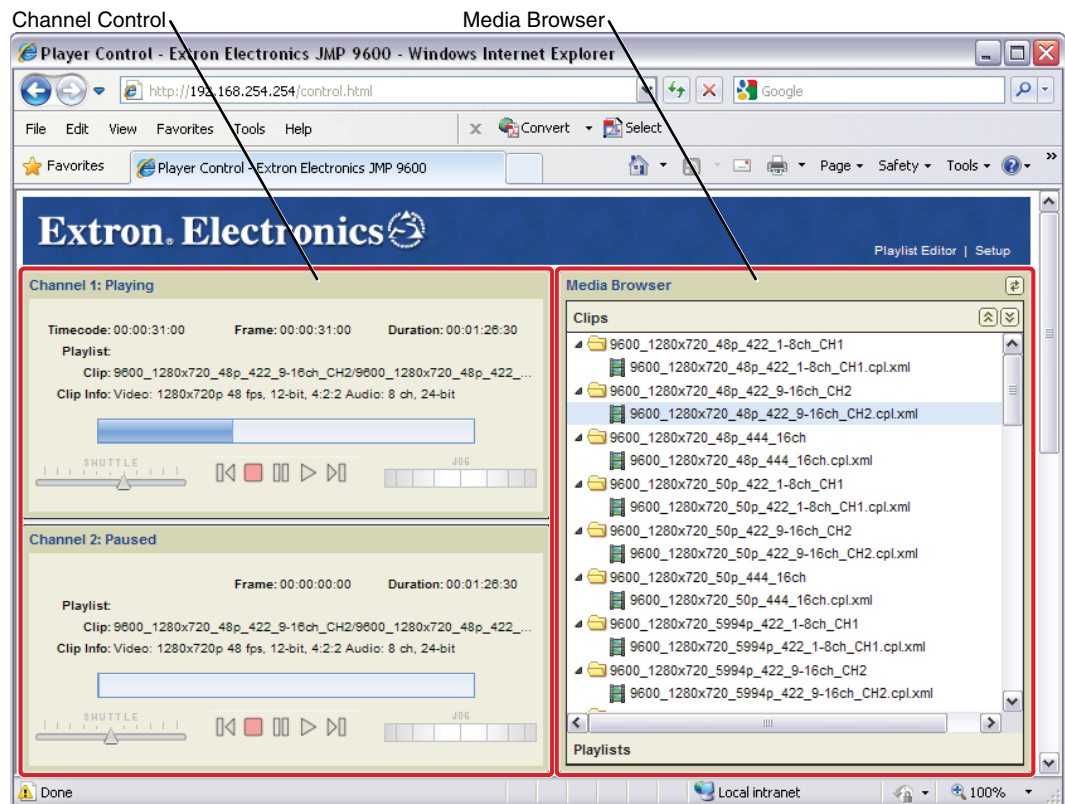
**LAN 1:** 192.168.254.254      **LAN 2:** 192.168.254.253

- To access the stand-alone MSVPP page, enter `<IP address>/msvpp.html`, where "msvpp.html" is case sensitive.

4. Press the keyboard **<Enter>** key. The player downloads the Player Control page (see figure 35) (or the MSVPP page if you accessed it as described in the NOTE above).

## Player Control Page

The **Player Control** page (figure 35) is the default startup page, appearing when you initially download the web pages from the player. If you are on the **Playlist Editor** page (see figure 40), click the **Player Control** link at the top right of the page. The **Player Control** page consists of the **Channel Control** panel (transport controls) and the **Media Browser** panel.



**Figure 35. Player Control Page**

The Player Control page continually updates itself to display the latest status of the clip or playlist that is loaded.

## Channel 1 and 2 Control and Status Windows

The Channel Control panel portion of the Player Control page consists of one or two control and status windows that display information unique to the output channels.

### NOTES:

- The Channel 2 control and status window is displayed only in 2-channel output mode and 2-channel locked output mode, both of which can be selected from the HTML **Setup > Video > Mode dialog box submenu**, described on page 53.
- The Channel 1 Status and Channel 2 Status are identical, except where noted.

Each channel window displays the real-time status information for the current content in the upper half of the window and transport controls in the lower half of the window.

### Real time status display

**Timecode:** 00:00:31:00      **Frame:** 00:00:31:00      **Duration:** 00:01:28:30

**Playlist:**

**Clip:** 9600\_1280x720\_48p\_422\_9-16ch\_CH2/9600\_1280x720\_48p\_422\_...

**Clip Info:** Video: 1280x720p 48 fps, 12-bit, 4:2:2 Audio: 8 ch, 24-bit

### Figure 36. Real Time Status Display

**Timecode** — The Timecode counter shows the current point in **Timecode: 00:00:31:00** time within the loaded program. The Timecode counter includes the pre-roll, roll, and post-roll periods.

**Frame** — The Frame counter shows the current point in time within **Frame: 00:00:31:00** the currently loaded playlist or clip; the roll period only. The Frame counter runs in sync with the Timecode counter but when paused, the actual frame is displayed.

**Duration** — The Duration display shows the entire run-time of the **Duration: 00:01:28:30** currently loaded playlist or clip. This is a static display only.

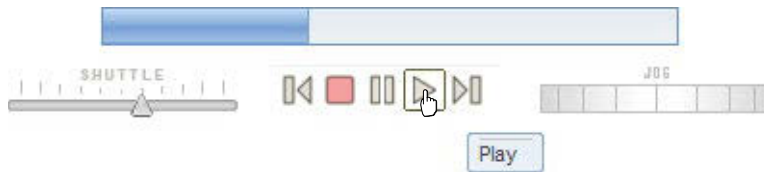
**NOTE:** The frame field of the Timecode and Frame counters is not updated during playback; only the hour:min:sec fields are active. The Timecode and Frame counters show the frame number when paused, in Frame mode, or in Shuttle mode.

**Playlist** — The Playlist field shows the name of the currently **Playlist: Canyon2.espl.xml** loaded playlist. If this field is empty, no playlist is loaded.

**Clip** — The Clip field shows the name of the **Clip: 720p\_422\_60\_1-8ch\_CH1\_rocky pinnacle** currently loaded clip. If this field is empty, no playlist is loaded.

**Clip Info** — The Clip Info field **Clip Info: Video: Video: 1280x720p, 60 fps, 12-bit, 4:2:2 Audio 8 ch, 24-bit** describes the currently loaded clip, whether it is a stand-alone clip or part of a playlist.

## Transport controls



**Figure 37. Transport Controls**

**TIP:** Rest the mouse over a control to see a pop-up tool tip that identifies the control, as shown by the **Play** pop-up in figure 37.

**Progress bar** — This bar tracks the progress of a clip in play. If the clip is paused, the progress bar freezes; if the clip is stopped the progress bar goes blank.

**Shuttle control** — Drag the pointer in this control to “shuttle” backwards and forwards through the playlist or clip file, at a rate controlled and indicated by the pointer.



- Drag the pointer to the **right** to play **forward** in increments of 1x (normal speed — this is the position shown at right), 2x, 4x, 8x and 16x normal speed.
- Drag the pointer to the **left** to play in **reverse** increments of -1x (normal speed but in reverse), -2x, -4x, -8x and -16x normal speed.

**NOTE:** The audio portion of the clip is active only when the playback speed is +1.0 (normal forward speed).

A tool tip displays at the top of the **Player Control** page whenever you drag the pointer away from its default (Play) position. You can also Pause the presentation by dragging the pointer one stop to the left from the default position.

Fast Reverse 2x

**Previous clip** (⏮) control — Click this control to load the previous clip file in the playlist. The control has no function if no playlist is loaded (see [Loading a Clip or Playlist into a Player Channel](#) on the next page).

**Stop** (⏹) control — Click this control to stop the currently playing presentation. When you click the Play control, the presentation starts over from the beginning.

**Pause** (⏸) control — Click this control to pause a currently playing presentation while leaving the image displayed.

**Play** (▶) control — Click this control to start the currently selected playlist or clip file.

**Next** (⏭) clip control — Click this control to load the next clip file in the playlist. The control has no function if no playlist is loaded (see [Loading a Clip or Playlist into a Player Channel](#) on the next page).

**Jog control** — When a channel is paused, click in the **Jog** control to step forward or backward through the content, frame by frame. Increments are ± 1, 5, 10 and 20 frames.

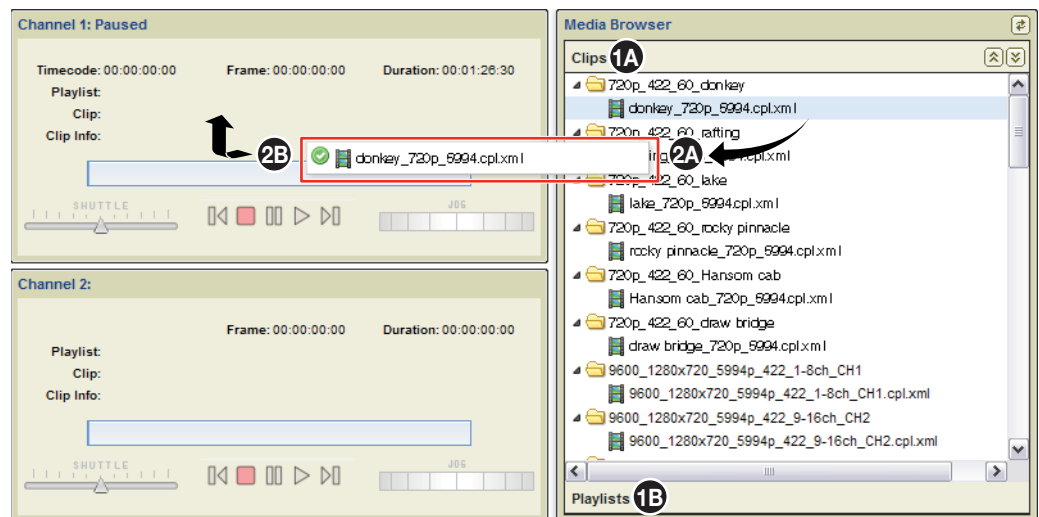


## Loading a Clip or Playlist into a Player Channel

### NOTES:

- You must have created one or more playlists before any are available for selection to select (see [Playlist Editor Page](#) on page 44).
- Ensure that the media player is configured for 1-channel output before attempting to load 4:4:4 chroma subsampled or stereoscopic content. If the player is configured for 2-channel output mode and 2-channel locked output mode, these formats will not load. Use the **Setup > Video > Mode dialog box submenu**, described on page 53 to check the video mode and change it if necessary.
- In 2-channel locked output mode, the files for the two channels must have the same number of frames, resolution, bit depth, and number of audio channel and must use 4:2:2 chroma subsampling. If these conditions are not met, the files will not load.
- The player must be correctly configured for the clip or playlist that you select using the **Settings > Video submenu**, on page 53, or else the player does not load the selected clip or playlist and the LCD reports ERROR.
- If you cannot get a clip to load, see **Setting the clip or playlist to autoplay and view clip info** on the next page to view the properties of the clip, which can help reveal the problem).
- If you load a new clip with a different resolution and frame rate than the currently loaded clip, it can take up to 4 seconds before it is ready to play.

1. If necessary, click the Clips panel header (see figure 38, **1A**) or Playlists panel footer (**1B**) in the Media Browser panel to open either the clip browser or playlist browser.



**Figure 38. Loading a Clip or Playlist**

2. Scroll through the list of available content to the desired clip or playlist.
3. Drag **2A** the desired clip or playlist from the Media Browser panel and drop it (**2B**) into the desired channel window in the Channel Control panel. A green check appears while dragging the clip or playlist when it is of a format that can be loaded.
4. Click the Play control (**▶**) to start the show.

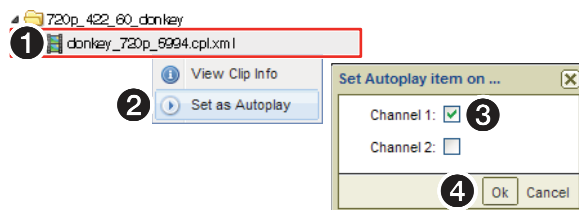
## Setting the clip or playlist to autoplay and view clip info

### NOTE:

- The player must be correctly configured for the clip or playlist that you select using the **Setup > Video > Mode dialog box submenu** (see page 53), or else the player does not load the selected clip or playlist.
- If you cannot get a clip to load, see the **NOTE** under step 2, below, to view the properties of the clip, which can help reveal the problem.
- This page lets you set a clip file to autoplay only. To view and clear an autoplay selection, use the **Autoplay Setup Dialog Box** (see page 49).
- If you load a new clip with a different resolution and frame rate than the currently loaded clip, it can take up to 4 seconds before it is ready to play.

The autoplay feature sets a specified clip or playlist to automatically start playing for channel 1 or channel 2 whenever the media player powers up and has loaded its operating system. Enable a clip or playlist to autoplay as follows:

1. In the Media Browser panel, **right-click** the file that you want to autoplay (see figure 39, ❶). A dialog box appears.

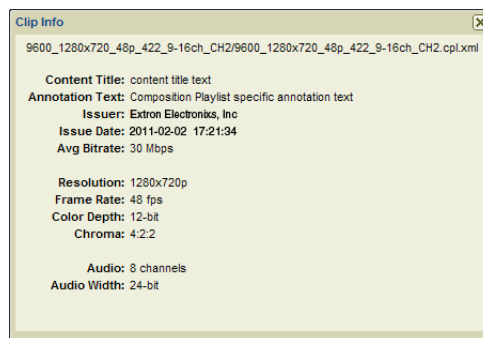


**Figure 39.** Loading a Clip or Playlist

2. Click **Set as Autoplay** (❷). The Set Autoplay dialog box appears.

**NOTE:** Alternatively, you can click **View Clip Info** to open a dialog box that shows details of the file, including:

- The file name
- The issuer (creator)
- The issue (creation) date
- The bit rate
- The resolution and frame rate
- The color depth
- The chroma subsampling rate
- The number of audio channels
- The audio width



Click the **X** to close the View Clip Info dialog box.

3. Select either the **Channel 1** or **Channel 2** checkbox (❸).
4. Click the **Ok** button (❹).

## Playlist Editor Page

The Playlist Editor page (see figure 40) is the default startup page, appearing when you initially download the web pages from the player. From the Playlist Editor page, click the **Playlist Editor** link at the top right of the page. The Player Editor page consists the Playlist Browser, Playlist Editor, and Clip Browser panels.

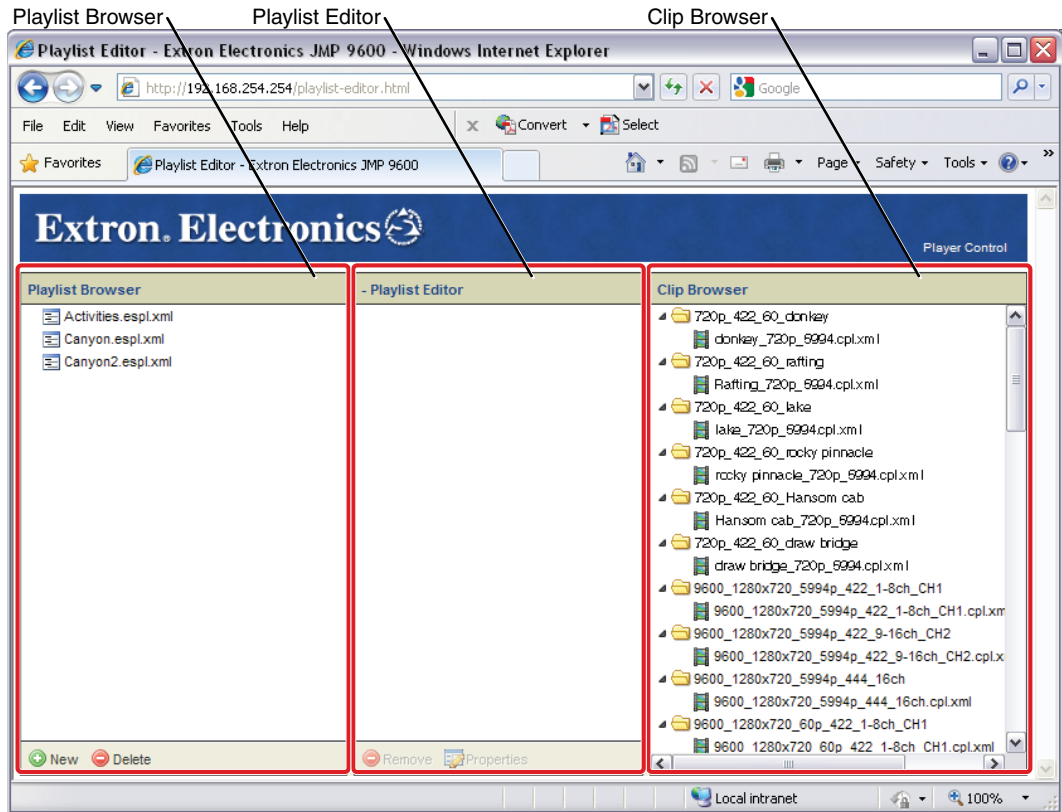
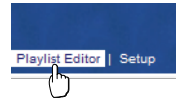


Figure 40. Playlist Editor Page

## Creating a New Playlist

1. In the Playlist Browser, click the **New** button (see figure 41, ❶). A dialog box opens.

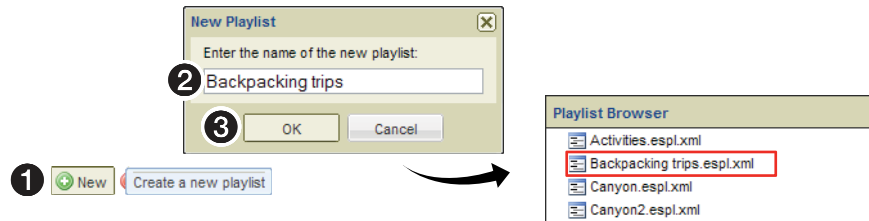


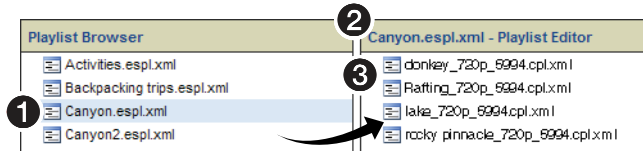
Figure 41. Creating a Playlist

2. Enter the name of the new playlist (❷).
3. Click **OK** (❸). The new playlist appears in the Playlist Browser panel.

## Editing the Contents of a Playlist

To perform all of the playlist editing functions described in the various procedures below, you must open the playlist in the **Playlist Editor** panel.

Open the desired playlist by clicking its name in the **Playlist Browser** panel (see figure 42, ❶). The name of the playlist appears in the **Edit Playlist** panel header (❷) and the clip files included in the opened playlist appear in the body of the panel (❸).



**Figure 42. Opening a Playlist**

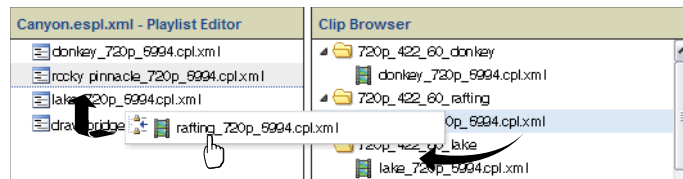
Once a playlist is open in the **Playlist Editor** panel, you can edit the playlist in the ways described below.

### NOTES:

- Valid playlists must contain clip files that are all of the same resolution, color space, frame rate, and number of audio channels. Although you can create an playlist with DCPs of different formats, any such playlist is invalid; you will receive an error message when you load the playlist on the **Player Control Page** and the playlist will not play.
- After you add a clip to a playlist, you need to load or reload the playlist before you can access or play the clip.

## Add DCP (clip files) to a playlist

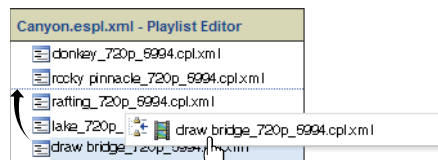
Drag and drop one or more files from the **Clip Browser** panel to the **Playlist Editor** panel. While you are dragging a file and before you drop it into the **Playlist Editor** panel, a dotted bar appears in the panel to show where in the playlist the clip will appear (see figure 43).



**Figure 43. Adding Clips to a Playlist**

## Reorder clip files in a playlist

Click and drag files within the **Playlist Editor** panel to reorder them. Before you release the mouse button, a blue box shows where in the playlist order the clip came from and a dotted line in the panel shows where in the playlist order the clip will appear (see figure 44).



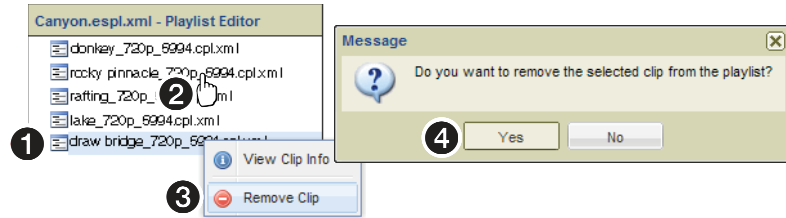
**Figure 44. Adding Clips to a Playlist**



## Remove a clip file from a playlist

1. In the **Playlist Editor** panel, left-click the file that you want to remove from the playlist (see ❶ in figure 45).

**TIP:** Hold down the <Ctrl> key to select multiple clip files.



**Figure 45. Removing Clips from a Playlist**

2. **Right**-click anywhere over the clip files listed in the **Playlist Editor** panel (❷). A dialog box appears.
3. Left-click the **Remove Clip** button in the dialog box (❸). A **Message** dialog box appears.

**TIP:** Or, preferred for multiple clips, select the files that you want to remove in accordance with step 1 and then click the **Remove** button on the footer of the **Playlist Editor** panel. The **Message** dialog box appears.



4. Left-click **Yes** to delete the selected clip files from the playlist (❹).

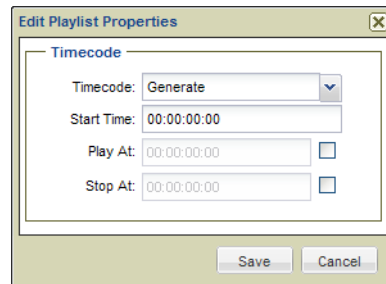
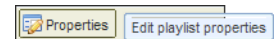
**TIP:** When working extensively with playlists, try opening a second browser window. This allows one browser to display the **Player Control** page and the second to display the **Playlist Editor** page.

## Editing the Properties of a Playlist

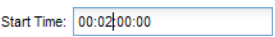
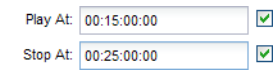
**NOTE:** See [Synchronization](#) on page 83 and [Configuring a player as an LTC primary](#) on page 89 in the “Detailed System Interaction” section for a detailed discussion of the JMP 9600 timecode feature, its interaction with other timing references and system components, and specific application examples.

You can edit the timecode mode and other properties of a playlist using controls available in the **Playlist Editor** panel.

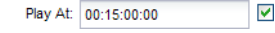

1. Open the desired playlist by clicking its name in the **Playlist Browser** panel. The name of the panel appears in the **Edit Playlist** panel header and the clip files included in the opened playlist appear in the body of the panel (see [figure 45](#) on the preceding page).
2. Click the **Properties** button on the footer of the **Playlist Editor** panel. The **Edit Playlist Properties** dialog box opens (see [figure 46](#)).



**Figure 46. Edit Playlist Properties Dialog Box**

3. In the **Timecode** dropdown menu, select among the following modes:
  - **Disabled** — The player does not respond to any incoming timecode. Proceed to step 10.
  - **Generate** — The player generates a timecode as a timecode generator when the playlist is playing. Proceed to step 4 to configure generate mode.
  - **Receive** — The player responds to an incoming timecode as a timecode receiver. Proceed to step 8 to configure receive mode.
4. In **Generate mode**, enter `<hours:minutes:seconds:frames>` in the **Start Time** field.
 
5. If necessary, click to select the **Play at** and **Stop at** checkboxes to allow you to enter time values.
 
6. If necessary, enter `<hours:minutes:seconds:frames>` in the **Play at** and **Stop at** checkboxes.

**NOTE:** The display goes black when the **Stop at** time expires.

7. Proceed to step 10.
8. In **Receive mode**, if necessary, click the **Play at** checkbox to allow you to enter time values.
 
9. If necessary, enter `<hours:minutes:seconds:frames>` in the **Play at** checkbox.
10. For all selections, click the **Save** button.
 

## Setup Functions

A wide variety of communications, video, and audio setup functions, necessary to ensure peak performance of the player and the video/audio playback, are available using the **Setup** palette of tools (see figure 47). To select the setup functions, from the **Playlist Editor** page, click the **Setup Editor** link (1, at right) at the top right of the page.

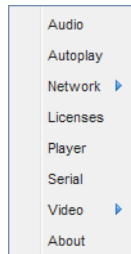
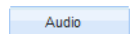
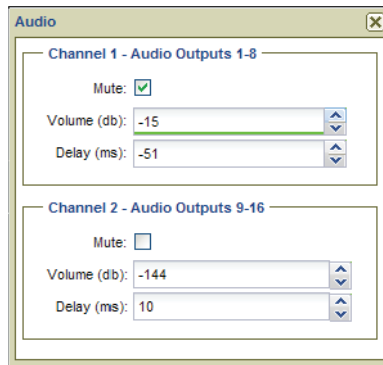


Figure 47. Setup Palette

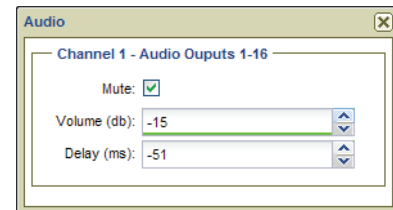
## Audio Setup Dialog Box



The **Audio** setup dialog box (see figure 48) provides controls to set the volume and audio delay variables for the one or two output groups and to mute one or both outputs.



Media player set to 2-channel or 2-channel locked output



Media player set to 1-channel output

Figure 48. Audio Setup Dialog Box

### NOTES:

- The image shown on the left in figure 48 shows the audio setup dialog box when the media player is set to either 2-channel or 2-channel locked output. The dialog box on the right is 1-channel locked output. Use the **Setup > Video > Mode dialog box submenu** (see page 53) to select the mode.
- Audio is unmuted (is output) when power is cycled.

To adjust the volume and delay values, click the up or down buttons (⬆️) as necessary. The green bar in the field indicates that your selection is being saved.

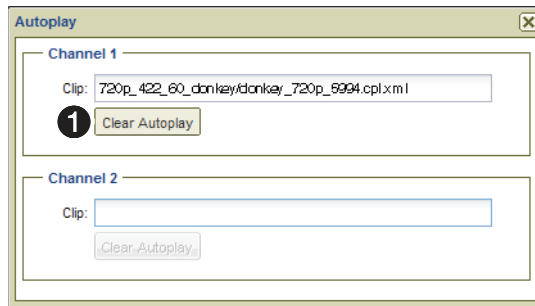
To toggle audio mute on and off, click the appropriate **Mute** checkbox. Mute disables the audio output from all 16 audio channels when the media player is in 1-channel mode. Mute disables audio channels 1 through 8 for video channel 1 and audio channels 9 through 16 for video channel 2 when the media player is in 2-channel or 2-channel locked mode.

Click the (X) to close the dialog box.

## Autoplay Setup Dialog Box

Autoplay

The Autoplay setup dialog box (see figure 49) displays the complete path of a clip file selected to autoplay in each channel and buttons to clear an autoplay selection (1).



**Figure 49. Autoplay Setup Dialog Box**

**NOTE:** This dialog box lets you view and clear an autoplay selection **only**. To set a clip file to autoplay, see [Setting the clip or playlist to autoplay and view clip info](#) on page 43.

Click the  to close the dialog box.

## Network Setup Dialog Boxes

Network

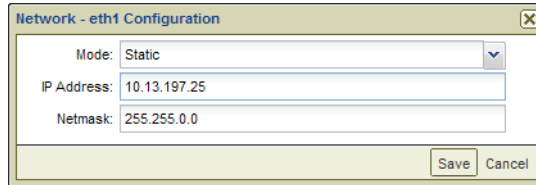
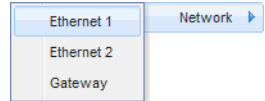
The Network selection provides pages to set up the media player for use in a LAN. Use these pages to access and change all of the port settings for both Ethernet connections of the media player.

### NOTES:

- The factory default IP, netmask, and gateway addresses are as follows:  
**LAN (Network Interface) 1:**  
IP address: 192.168.254.254      Netmask address: 255.255.0.0  
**LAN (Network Interface) 2:**  
IP address: 192.168.254.253      Netmask address: 255.255.0.0  
**Both ports:**  
Gateway address: 0.0.0.0      DHCP: Off
- If these values conflict with other equipment at your installation, you can change the addresses to any valid value.
- Editing the settings for an Ethernet port on which you have an active connection can immediately disconnect the media player from the network.
- If DHCP is enabled, the IP address and Netmask settings are disabled but can be viewed from the front panel. Disable DHCP to change the IP address and Netmask settings.

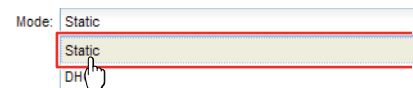
## Network Ethernet setup dialog boxes

1. Select **Network > Ethernet 1** or **Network > Ethernet 2** to open the selected Ethernet setup dialog box (see figure 50).



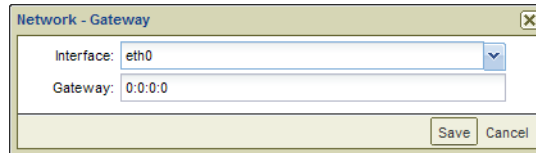
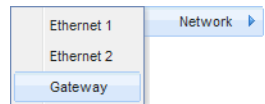
**Figure 50. Ethernet Setup Dialog Box**

2. For the **IP Address** and **Netmask** (subnet mask) fields:
  - a. Click in the desired field.
  - b. Edit the address as desired.
3. Click the **Mode** dropdown menu and select either **Static** or **DHCP**.
4. Click the **Save** button.
5. Click the **X** to close the dialog box.



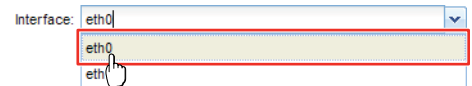
## Network Gateway setup dialog box

1. Select **Network > Gateway** to open the Gateway dialog box (see figure 51).



**Figure 51. Gateway Setup Dialog Box**

2. Click the **Mode** dropdown menu and select either **eth0** or **eth1**.



**NOTE:** **eth0** = LAN port 1.  
**eth1** = LAN port 2.

3. Edit the address as desired.
4. Click the **Save** button.
5. Click the **X** to close the dialog box.

## License Management Setup Dialog Box

Licenses

The **License Management** setup dialog box (see figure 52) allows the user to see the installed license and enter an acquired product license, unlocking the capabilities supported by that key.



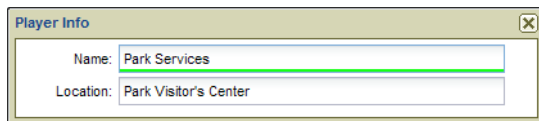
**Figure 52. Enter a License Key**

1. Obtain the license key from Extron.
2. Click the **Install New License** button (see ❶ in figure 52).
3. Enter the 32 characters of the new license into the license key field (❷).
4. Click the **OK** button (❸).
5. Click the  to close the dialog box.

## Player Info Setup Dialog Box

Player

The **Player Info** setup dialog box (see figure 53) allows the user to give the media player a distinct identity.



**Figure 53. Player Info Setup Dialog Box**

Enter a name and location in the appropriate fields. Click the  to close the dialog box. The green bar in the field indicates that your selection is being saved.

## Serial Port Setup Dialog Box

Serial

The Serial Port setup dialog box provides tools to configure serial port Remote 1 (see figure 54).

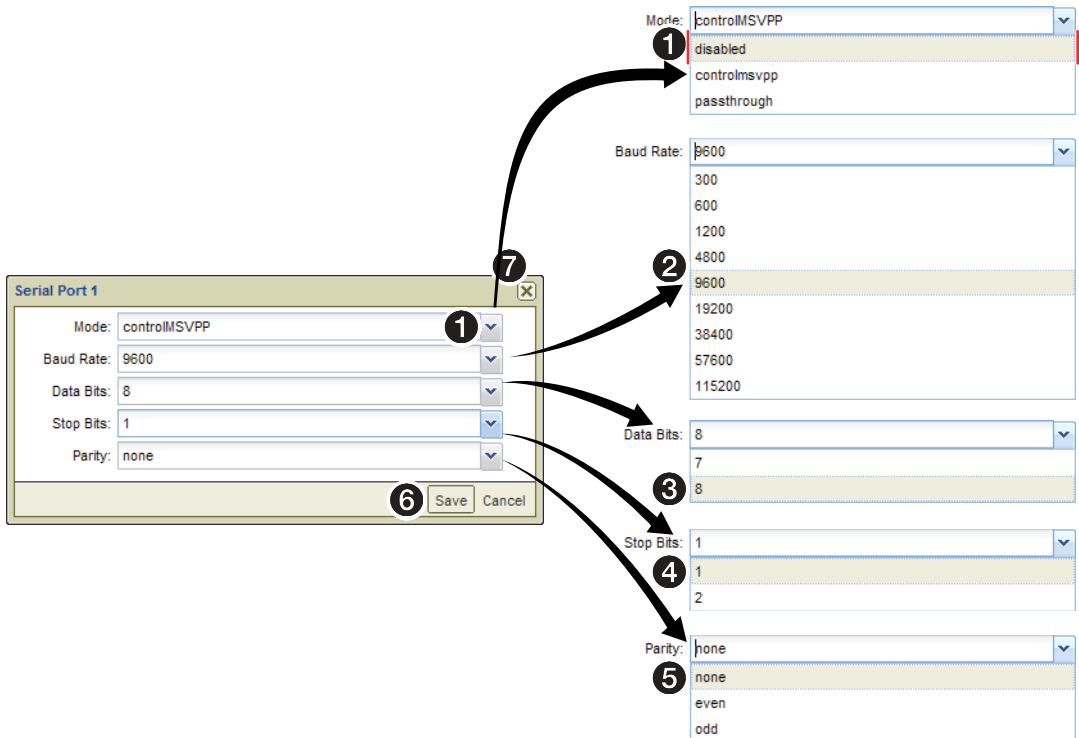


Figure 54. Serial Port Setup Dialog Box Submenu

### NOTES:

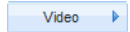
- Serial port Remote 1 can be set to **disabled**, **controlmsvpp** (control the player), or **passthrough** (pass the signals through the player to a controlled device).
- **When you are using the passthrough mode**, ensure that the **Baud Rate**, **Data Bits**, **Stop Bits**, and **Parity** are set to match the device that you are controlling. Also, in your remote control program, set the Telnet port number to 4001 and the IP address to that of media player. When the port is in **passthrough** mode, any TCP/IP control string that appears on port 4001 of the JMP 9600 is passed to the Remote 1 port.
- Serial port Remote 2 is for factory use only. The customer or end user cannot control the player via the Remote 2 port.

Configure serial port Remote 1 as follows:

**NOTE:** You do not need to change variables that are unnecessary for your configuration.

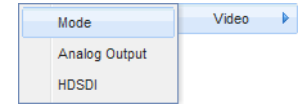
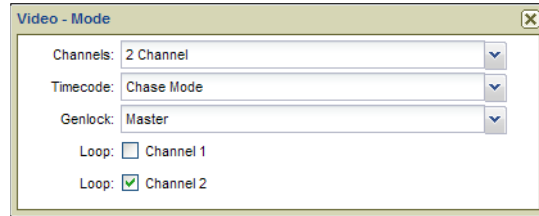
1. Click the **Mode** dropdown menu and select among the settings (see ❶ in figure 54).
2. Click the **Baud Rate** dropdown menu and select among the settings (❷).
3. Click the **Data Bits** dropdown menu and select among the settings (❸).
4. Click the **Stop Bits** dropdown menu and select among the settings (❹).
5. Click the **Parity** dropdown menu and select among the settings (❺).
6. Click the **Save** button or the **Cancel** button to save or abandon the changes (❻).
7. Click the  or the **Cancel** button to close the dialog box (❼).

## Video Setup Dialog Boxes



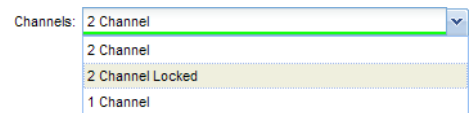
The **Video** selection provides pages to set up the media player for best video performance. Use these pages to set the number of channels the player outputs, configure the video outputs (analog, DVI-I, or HD-SDI), set the video colorspace, and configure video synchronization.

### Video mode setup dialog box



**Figure 55. Video Mode Setup Dialog Box**

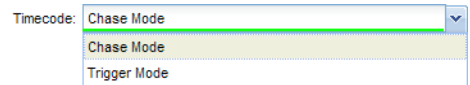
**Channels dropdown menu** — Select among the output modes shown at right. The green bar in the field indicates that your selection is being saved.



#### NOTES:

- See [page 3](#) for detailed descriptions of the functions of the modes.
- In 2-channel or 2-channel locked mode, the channels share the same clock reference. Both channels are constrained to operate at the same resolution and frame rate, which is set by loading a clip or playlist. The parameters of the last clip loaded take precedence.

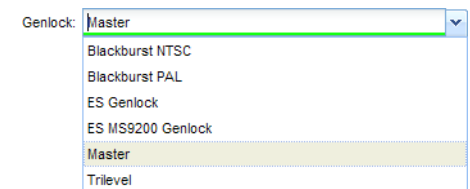
**Timecode dropdown menu** — Select among the timecode modes shown at right. The green bar in the field indicates that your selection is being saved.



**Chase mode** — The media player stays in sync with a received timecode signal.

**Trigger mode** — The media player responds to a specific timecode signal and continues with no further response to the ongoing timecode.

**Genlock dropdown menu** — Select among the genlock modes shown at right. The green bar in the field indicates that your selection is being saved.



**Black Burst PAL and Black Burst NTSC** — Receive a selected sync signal.

**ES Genlock and ES MS9200 Genlock** — Receive ES Genlock or MS9200 Genlock as a receiver.

#### NOTES:

- ES Genlock and ES MS9200 Genlock are proprietary sync signals that are native to Electrosonic products that have been acquired by Extron and to older Electrosonic products.
- Only JMP 9600 2K units support ES genlock and MS genlock.
- When using ES Genlock or ES MS9200 Genlock, the video signal resolution and frame rate must match on all players.



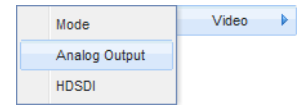
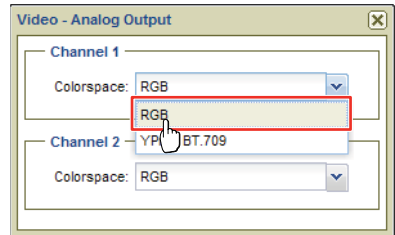
**Master** — Send ES Genlock genlock as a generator.

**NOTE:** Media players with serial numbers 9600-01 through 9600-50 support the Master, ES Genlock, and ES MS9200 Genlock sync types only (see the front panel **About menu** on page 37 in the “Operation” section to identify the serial number).

**Trilevel** — Receive a tri-level (HD video) sync signal.

**Loop check boxes** — Select (check) and deselect the channel loop modes as desired. Loop:  Channel 1  
Loop:  Channel 2

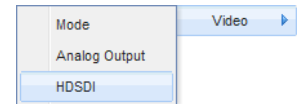
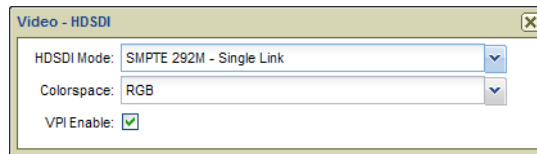
### Video analog setup dialog box



**Figure 56. Video Analog Output Setup Dialog Box**

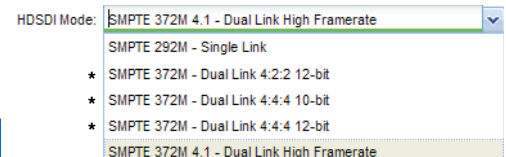
Select between the Colorspace selections shown in figure 56. The green bar in the field indicates that your selection is being saved.

### Video HD-SDI setup box



**Figure 57. Video HD-SDI Setup Dialog Box**

**HDSDI Mode** — Select between the output modes shown at right. The green bar in the field indicates that your selection is being saved.



#### NOTES:

- The Dual Link High Framerate, available on the JMP 9600 2K model only, supports resolutions of up to 1920x1080 and 2048x1080 at 48, 50, and 60 Hz. The player must be set to 2-channel-locked mode to select this rate. See **High Frame Rate** on page 92 in the “Detailed System Interaction” section for more details on this mode.
- You can configure the media player signal combinations that are not defined within the video payload identifier specification (SMPTE 352); for example single channel, dual link HD-SDI operation with 12-bit, 4:2:2 color sampling **and** the RGB color space. Some displays may not correctly display such an image or may require manual adjustment. The video payload identifier is updated correctly when the next valid SMPTE 352 format is selected.

\* **These selections are available in 1 channel mode only.**

**Colorspace** — Select between the Colorspace selections shown at right. The green bar in the field indicates that your selection is being saved.

Colorspace:    
RGB  
YPrPb BT.709

**VPI enable checkbox** — Select (check) and deselect VPI as desired.

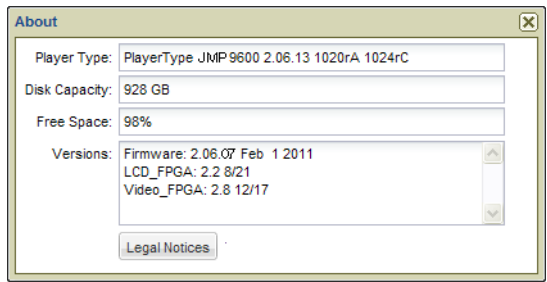
VPI Enable:

**NOTE:** The player ships with the dual-link HD-SDI VPI tag on by default. You may chose to turn it off for backwards compatibility or legacy support.

## About Setup Dialog Box

**NOTE:** The media player must run firmware version 2.06.07 or newer. If you have an older version, update the firmware to ensure proper operation (see [Data Transfer and Firmware Upgrade](#) on page 78 in the “Detailed System Interaction” section).

The **About** setup dialog box (see figure 58) displays the exact media player model, revision levels, and disk usage information. Firmware revision (to identify when upgrades are necessary) and disk usage (to determine if there is room for loading more clip files) are of particular interest.



**Figure 58. About Setup Dialog Box**

**NOTE:** The revision levels shown in figure 58 are examples only.

# Programming Guide

This section describes MSVPP command control of the JMP 9600 Media Player, including:

- [Control Ports](#)
- [Host-to-Player instructions](#)
- [Using the Command and Response Table](#)

## Control Ports

The media player has three remote control ports make remote control of the player possible:

**Remote port 1** — An RS-232 port on a 9-pin D female connector

**LAN ports 1 and 2** — Local area network (LAN) port or wide area network (WAN) ports on RJ-45 connectors

### Remote Port 1

See [item ④](#) and [Remote Control Port](#) on page 11.

#### NOTES:

- The media player can:
  - Operate at 300, 600, 1200, 1800, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 baud rates
  - Use 7 or 8 data bits
  - Use no parity, even parity, or odd parity.
  - Use 1 or 2 stop bits
- If necessary, use the front panel controls to set the port to ControlMSVPP (see the front panel [Serial Ports submenu](#) on page 31 in the “Operation” section).
- Serial port Remote 2 is for factory use only. The customer or end user cannot control the player via the Remote 2 port.

### LAN Ports

#### NOTES:

- The JMP 9600 is shipped password-protected. The factory configured password for all accounts on this device has been set to the device serial number. This password cannot be changed.
- Two LAN ports allow the media player to reside on two different subnets simultaneously.

The rear panel Ethernet connector on the media player can be connected to an Ethernet LAN or WAN (see [item ⑤](#) and [LAN Ports](#) on page 9). The simplest way to establish communications between the player and the controlling device is via the built-in HTML MSVPP page, although you can use other communication utilities. The MSVPP commands and the actions of the player are identical to the commands and actions the player has when communicating with it via its RS-232 port.

## Default IP Addresses

To access the media player via either LAN port, you need the IP address for the port that you are using, and may need the netmask mask and the gateway address. The factory-specified defaults are:

- **IP address** (port 1): 192.168.254.254
- **IP address** (port 2): 192.168.254.253
- **Netmask mask:** 255.255.0.0
- **Gateway address:** 0.0.0.0
- **DHCP:** off
- **Password:** Device serial number

These values can be viewed and changed from the front panel (see the front panel [Networking submenu](#) on page 26 in the “Operation” section).

## Opening the Embedded HTML MSVPP Page

The simplest way to establish communications between the player and the controlling device is via the built-in HTML MSVPP page. Open the HTML MSVPP page as follows:

1. On your computer, start a web browser program such as Microsoft Internet Explorer.
2. Click in the **Address** field of the browser.
3. Enter enter *<IP address of the connected port>/msvpp.html*, where “msvpp.html” is case sensitive.
4. Press the keyboard **<Enter>** key. The player downloads the MSVPP page (see figure 59).

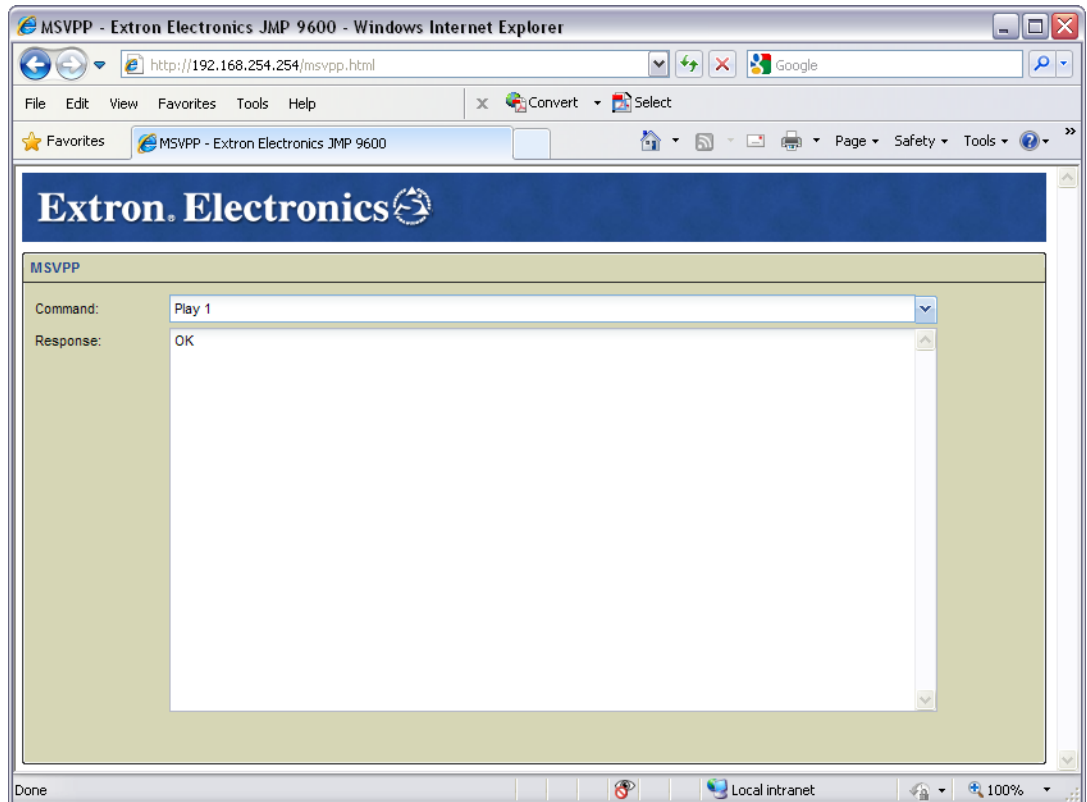




Figure 59. MSVPP Page

5. Enter valid MSVPP commands (see the **Command and Response Table for MSVPP Commands** beginning on page 61) in the **Command** field and press the keyboard **<Enter>** key. The media player responds accordingly.

**TIPS:**

- Previous commands are available using the drop-down list of the Command field (click .
- If you enter a folder or file name with the wrong case, such as CLip-1 rather than Clip-1, refresh the page (click ) after you correct the error to ensure that the original, incorrect, command is not substituted.

## Host-to-Player Instructions

**NOTE:** The format for the JMP 9600 Media Player commands is **DIFFERENT** than most other Extron products. **Read this section CAREFULLY.**

Valid MSVPP commands consist of the following:

- **A command word** — Commands words are defined in the Command and Response Table for MSVPP Commands. Commands are **not** case sensitive. Variables, such as file names, **are** case sensitive.
- **Zero, one, or more parameters (x#s)** — Parameters are defined in **Symbol Definitions**, on the next page. Multiple parameters must be separated by a space character (•). Parameters that include spaces must be enclosed in double quotes (“”).
- **Terminator** — A carriage return without a line feed ( $\leftarrow$ ) terminator is required to end a command character sequence.

**NOTE:** If you are connected via either LAN port and are using the MSVPP page, pressing the keyboard **<Enter>** key at the end of the command provides a valid terminator.

When a command is valid, the unit executes the command and sends a response to the host device. All responses from the unit to the host end with a carriage return and a line feed (CR/LF =  $\leftarrow$ ), which signals the end of the response character string. When a command involves both channels (x3 = 1,2), the unit responds separately for each channel.

## Using the Command and Response Table

Symbols (parameters), defined below, are used throughout the **Command and Response Table for MSVPP Commands**, which begins on page 61. The symbols represent variables in the command/response table fields. Letters in the command field are not case-sensitive. Hexadecimal equivalent are not necessary for the MSVPP command set, with the possible exception of the carriage return character ( $\emptyset x \emptyset D$ ) and the line return character ( $\emptyset x \emptyset A$ ).

## Symbol Definitions

↵ = CR/LF (carriage return/line feed)

← = Carriage return (no line feed)

• = Space (hard) character

X1 = Folder name

Name of a DCP folder (such as "720p\_422\_60\_donkey")

X2 = Clip name

Name of a clip file (such as "rafting\_720p\_5994.cpl.xml")

X3 = Output (channel)

1 = channel 1                      2 = channel 2                      1,2 = both channels

X4 = Playlist name

Name of a playlist file (such as "Canyon\_documentary.espl.xml")

**NOTE:** For the clip name (X2) and playlist name (X4), the name that you enter **must** include the file extension ("cpl.xml" for a clip or "espl.xml" for a playlist) to be valid. If you try to enter a name without the file extension, the media player responds with **ERROR**.

X5 = Playlist position

Sequential position of a clip in a playlist

X6 = Play speed

Speed at which to play video, where:

1.0 is normal speed, 2.0 is 2x normal speed, and so on

A positive value (+) is forward video (+ is assumed if no direction is specified)

A negative value (-) is reverse video

Fractional speeds are rounded up or down to the 3rd decimal place (0.000).

X7 = Frame count for advance command

Number of video frames to jump forward or backward, where:

A positive value (+) is forward (+ is assumed if no direction is specified)

A negative value (-) is reverse

X8 = Frame count for seek and assorted timecode commands

nn:nn:nn:nn ("hour": "minute": "second": "frame")

X9 = Property name

"PlayAt", "StartTime", "StopTime", "TimecodeMode", or "Path"

**NOTE:** All names, file names, clip names, and property names, **are** case sensitive.

X10 = Playlist property value

If X9 = "TimecodeMode":

X10 = "Disabled", "Generate", or "Receive"

If X9 = "PlayAt", "StartTime",  
or "StopTime":

X10 = nn:nn:nn:nn (hours:minutes:seconds:frame)

If X9 = "Path":

X10 = the path to the playlist file (an empty character if the file is in the root playlist folder)

X11 = Timecode mode

"timecodeGenerate" or "timecodeReceive"

X12 = Timecode receive mode setting

"chase" or "trigger"

X13 = On/off (audio mute, loop, input trigger)

0 = off or 1 = on

X14 = Video mode

"1\_channel", "2\_channel", or "2\_channel\_locked"

X15 = Video output

video.hdsdi = HD-SDI output video (channel 1 and channel 2)

ch1.video.dac = channel 1 analog video

ch1.video.dvi = channel 1 digital video

ch2.video.dac = channel 2 analog video

ch2.video.dvi = channel 2 digital video

X16 = Colorspace

"rgb" or "yprpb•bt.709"

X17 = Color value

000 (none) through 255 (maximum)

X18 = Alpha blend

000 through 255

X19 = Time

0.00 (seconds) though 255.0

X20 = Genlock mode

"master", "esgen", "esgenlegacy", "blackburst\_ntsc",  
"blackburst\_pal", or "trisynch"

**NOTE:** "esgen" is sync receiver to the proprietary Electrosonic ESGen sync.  
"esgen\_legacy" is a sync receiver to the proprietary Electrosonic ESGen sync (native to older products, such as the MS9200). "master" is ESGEN sync output as a sync generator.  
"trisynch" is HDTV tri-level sync.

X21 = HD-SDI enable state

0 = not enabled, 1 = enabled

X22 = HD-SDI mode

"single", "dual\_422\_12", "dual\_444\_10", "dual\_444\_12" or  
"dual\_422\_hfr"

### NOTES:

- The "dual\_422\_hfr" high frame rate is a licensed option of the JMP 9600 2K model.
- The high frame rate supports resolutions of up to 1920x1080 and 2048x1080 at 48, 50 and 60 Hz. High frame rate uses the dual HD-SDI connection mode per SMPTE 372M. The player must be set for 2-channel-locked mode and only content specifically encoded for the high frame rate mode plays back correctly.

<b>X23</b>	= Delay	± up to 500 milliseconds
<b>X24</b>	= Volume	0 (no attenuation, full volume) through -144 (full attenuation, audio effectively muted)
<b>X25</b>	= License key	32 alphanumeric digits
<b>X26</b>	= License	Installed license (such as "V2HD" or "V22K")
<b>X27</b>	= Serial port baud rate	300, 600, 1200, 1800, 2400, 4800, 9600, 19200, 38400, 57600, or 115200
<b>X28</b>	= Parity	"none", "even", or "odd"
<b>X29</b>	= Data bits	7 or 8
<b>X30</b>	= Stop bits	1 or 2
<b>X31</b>	= Serial port mode	"controlMSVPP", "disabled", or "passthrough"
<b>X32</b>	= Ethernet port	"Eth0" or "Eth1" (for LAN port 1) or "Eth2" (for LAN port 2)
<b>X33</b>	= IP address, Netmask, gateway address	###.###.###.###
<b>X34</b>	= DHCP on/off status	"On" or "Off"
<b>X35</b>	= Hardware (MAC) address	##:##:##:##:##:##
<b>X36</b>	= Digital Input port or Relay output port	1, 2, 3, or 4
<b>X37</b>	= Level	"+" = high level, logic 1; "-" = low Level, logic 0
<b>X38</b>	= Date	In the format: MM/DD/YYYY where: MM = month: 01 (Jan) through 12 (Dec) DD = day: 01 through 31 YYYY = year: 1970 through 2037
<b>X39</b>	= Time	In the format: HH:MM:SS where: HH = hour: 00 through 23 MM = minutes: 00 through 59 SS = seconds: 00 through 59
<b>X40</b>	= Identifier	Location or name

**NOTE:** If there are spaces (•) in the identifier (such as Theater 1), the entire name must be enclosed in double quotation marks in the set command (such as "Theater 1"). Quotes are not required for a single word identifier (such as Theater). The identifier is always in quotes in the response.

<b>X41</b>	= Memory capacity or availability	In 1024-byte blocks
<b>X42</b>	= Video mode / channel availability	1 (1-channel mode) or 2 (2-channel mode or 2-channel locked mode)
<b>X43</b>	= Horizontal or vertical resolution	<b>Horizontal:</b> 1280, 1920, or 2048 <b>Vertical:</b> 780 or 1080
<b>X44</b>	= Scan type	i (interlaced) or p (progressive)
<b>X45</b>	= Frame rate	23.98, 24, 25, 29.97, 30, 48, 50, 59.94, or 60
<b>X46</b>	= Player state	"playing", "paused", or "stopped"
<b>X47</b>	= Frame count	Number of frames (total or current position)
<b>X48</b>	= Percentage	Current position in a playing clip expressed as a percentage
<b>X49</b>	= Temperature	nn.nn °C
<b>X50</b>	= Voltage sensor	"ps1•5vdc"                      "ps2•5vdc" "ps1•3.3vdc"                  "ps2•3.3vdc" "ps1•12vdc"                   "ps2•12vdc" "ps1•-12vdc"                 "ps2•-12vdc"

**NOTES:**

- The sensor name must be enclosed in double quotation marks as shown.
- Positive voltage sensor names **must not** include the positive sign (+); negative voltage sensor names **must** include the negative sign (-).

<b>X51</b>	= Voltage	±n.nn (3.3 vdc and 5 vdc sensors) or ±nn.nn (12 vdc sensors)
<b>X52</b>	= Version	
<b>X53</b>	= Date	

## Command and Response Table for MSVPP Commands

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Media management</b>			
View directory	GetMediaTree←	MediaBranch•1• <b>X1</b> ↵ MediaBranch•1• <b>X1</b> ↵ • • MediaBranch•1• <b>X1</b> ↵ MediaBranch↵ MediaBranch•1•720p_422_60_donkey↵ MediaBranch•1•720p_422_60_rafting↵ • • MediaBranch•1•9600_1200x720_48p_Canyon↵ MediaBranch↵	List all DCP folders (clips and playlist) saved in the media player.
Example:	GetMediaTree←	MediaBranch•1•720p_422_60_donkey↵ MediaBranch•1•720p_422_60_rafting↵ • • MediaBranch•1•9600_1200x720_48p_Canyon↵ MediaBranch↵	
View clips	GetClips• <b>X1</b> ←	Clips•" <b>X2</b> "↵ • • Clips•" <b>X2</b> "↵ Clip↵	List all clips (*.cpl.xml files) within a folder ( <b>X1</b> ). If <b>X1</b> is not a value returned by the GetMediaTree command, no <b>X2</b> s are listed in the response.
Example:	GetMediaClips•720p_422_60_rafting←	Clips•"rafting_720p_5994.cpl.xml"↵ Clip↵ OK↵	
Load a clip	LoadClip• <b>X3</b> • <b>X1</b> / <b>X2</b> ←	LoadClip•1•720p_422_60_rafting/rafting_720p_5994.cpl.xml↵ OK↵	Load a clip to play. This command performs the same function as the front panel load (see <b>Playlist and Clip Fields</b> on page 19). The <b>Play/Pause (P/I)</b> button lights. If <b>X1</b> and <b>X2</b> are not values returned by the GetMediaTree command and GetMediaClips command, or if the media player is not correctly configured for the clip that you select, the media player responds with <b>ERROR</b> . Load the <i>rafting</i> clip from the <i>rafting</i> folder to play on channel 1.
Example:	LoadClip•1•720p_422_60_rafting/rafting_720p_5994.cpl.xml←	OK↵	

### NOTES:

- If the folder name **X1** and the clip name **X2** contain any spaces (•), the entire set of parameters must be enclosed in quotes ("**X1**/**X2**"), for example:  
**LoadClip•1•"720p\_422\_60\_rafting/river•rafting.cpl.xml"↵**.
- Ensure that the media player is configured for 1-channel output before attempting to load 4:4:4 chroma subsampled or stereoscopic content. If the player is configured for 2-channel output mode and 2-channel locked output mode, these formats will not load. Use the **Get•VideoMode** MSVPP command on page 67 to check the video mode.
- In 2-channel locked output mode, the files for the two channels must have the same number of frames, resolution, bit depth, and number of audio channel and must use 4:2:2 chroma subsampling. If these conditions are not met, the files will not load.
- If you cannot get a clip to load, see **Setting the clip or playlist to autoplay and view clip info** on page 43 in the "HTML Operation" section to view the properties of the clip, which can help reveal the problem.
- If you load a new clip with a different resolution and frame rate than the currently loaded clip, it can take up to 4 seconds before it is ready to play.

### KEY:

- X1** = Folder name
  - X2** = Clip name
  - X3** = Output
- Name of a DCP folder (such as "720p\_422\_60\_donkey")  
Name of a clip file (such as "rafting\_720p\_5994.cpl.xml")  
1 = channel 1      2 = channel 2      1,2 = both channels



## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Media management (continued)</b>			
Load the next clip to play	LoadNextClip•1•720p_422_60_rafting/river•rafting.cpl.xml←	OK←	Load a clip to play automatically after the clip that is currently playing in channel <b>X3</b> ends. If <b>X1</b> and <b>X2</b> are not values returned by the <code>GetMediaTree</code> command and <code>GetMediaClips</code> command, or if the media player is not correctly configured for the clip that you select, the media player responds with <b>ERROR</b> .
			<p><b>NOTES:</b></p> <ul style="list-style-type: none"> <li>If you send multiple <code>LoadNextClip</code> commands, each overwrites the one before it; only the most recently loaded clip is available to be played.</li> <li>If the folder name (<b>X1</b>) and the clip name (<b>X2</b>) contain any spaces (•), the entire set of parameters must be enclosed in quotes ("<b>X1</b>/<b>X2</b>"), for example: <code>LoadNextClip•1•"720p_422_60_rafting/river•rafting.cpl.xml"</code>.</li> </ul> <p>Create a playlist <code>CreatePlaylist•<b>X4</b>←</code> <span style="float:right">OK←</span></p> <p>Create a playlist <code>CreatePlaylist•Canyon documentary.espl.xml←</code> <span style="float:right">OK←</span></p> <p>Example: <span style="float:right">OK←</span></p> <p>Create a <i>Canyon documentary</i> playlist.</p>
			<p><b>NOTE:</b> Clips within a playlist must have the same resolution and frame rate.</p> <p>Add a clip to a playlist <code>AddPlaylistItem•<b>X4</b>/<b>X1</b>/<b>X2</b>•<b>X5</b>←</code> <span style="float:right">OK←</span></p> <p>Add the clip file <b>X5</b>, in the folder <b>X1</b>, in the folder <b>X2</b>, to playlist <b>X4</b> at position <b>X5</b>. The clip previously at position <b>X5</b>, and all clips after it sequentially, slip by one position. If you specify a position (<b>X5</b>) that is larger than the number of clips in the playlist, the clip goes at the end. If the playlist does not already exist, the media player creates it automatically as it executes the command.</p> <p>Example: <code>AddPlaylistItem•River activities.espl.xml•720p_422_60_kayak/kayak_720p_5994.cpl.xml•2←</code> <span style="float:right">OK←</span></p> <p>Add a clip on <i>kayaking</i> to the playlist on <i>river activities</i>. The <i>kayaking</i> clip plays second. Create the playlist "<b>River activities.espl.xml</b>" if it does not exist.</p>
			<p><b>NOTE:</b> After you add a clip to a playlist, you need to load or reload the playlist before you can access or play the clip.</p> <p>Move a clip in a playlist <code>MovePlaylistItem•<b>X4</b>•<b>X5</b>current•<b>X5</b>new←</code> <span style="float:right">OK←</span></p> <p>Move the clip file in position <b>X5</b>current to position <b>X5</b>new. Clips in between the two positions move up to fill the empty space.</p> <p>Example: <code>MovePlaylistItem•River activities.espl.xml•2•4←</code> <span style="float:right">OK←</span></p> <p>Move the clip in the second position in the <i>river activities</i> the playlist to the fourth position.</p>
			<p><b>KEY:</b> <b>X3</b> = Output  <b>X1</b> = Folder name  <b>X2</b> = Clip name  <b>X4</b> = Playlist name  <b>X5</b> = Playlist position</p> <p>1 = channel 1    2 = channel 2    1, 2 = both channels  Name of a DCP folder (such as "720p_422_60_donkey")  Name of a clip file (such as "rafting_720p_5994.cpl.xml")  Name of a playlist file (such as "Canyon documentary.espl.xml")  Sequential position of a clip in a playlist</p>

## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Media management (continued)</b> Append a clip to a playlist	AddPlaylist•X4•X1/X2←	OK←	Add the clip file X2, in the folder X1, to playlist X4. The file cited in the command is added as the <i>last</i> clip in the playlist. If the playlist does not already exist, the media player creates it automatically as it executes the command.
<i>Example:</i>	AddPlaylist•River•activities.espl.xml•720p_422_60_rafting/rafting_720p_5994.cpl•X1←	OK←	Add a clip on <i>rafting</i> to the end of a playlist on <i>river activities</i> . Create the playlist "River activities.espl.xml" if it does not exist.
List clips in a playlist	ListPlaylist•X4← • • • PlaylistEntry•X4•X1/X2← PlaylistEntry•X4•X1/X2← • • • PlaylistEntry•X4•X1/X2← Playlist←		List all of the clips in a playlist and the folders in which the clips are saved.
Remove a clip from a playlist <i>Example:</i>	RemovePlaylistItem•X4•X5← RemovePlaylistItem•River•activities.espl.xml•2←	OK← OK←	Remove the clip at location X5 from playlist X4. Delete the clip at location 2 from the <i>River activities</i> playlist
List playlists	ListAllPlaylists← • • • Playlist•X4← Playlist•X4← • • • Playlist•X4← Playlist←		Load a playlist to play. This command performs the same function as the front panel load (see <b>Playlist and Clip Fields</b> on page 19). The <b>Play/Pause</b> (▶/⏸) button flashes. If the X4 is not a value returned by the ListAllPlaylists command, or if the media player is not correctly configured for the clip that you select, the media player responds with <b>ERROR</b> .
Load a playlist <i>Example:</i>	LoadPlaylist•X3•X4← LoadPlaylist•1•River•activities.espl.xml←	OK← OK←	Load the <i>river activities</i> playlist to play on channel 1.

**KEY:** X3 = Output  
X1 = Folder name  
X2 = Clip name  
X4 = Playlist name  
X5 = Playlist position  
1 = channel 1  
2 = channel 2  
1, 2 = both channels  
Name of a DCP folder (such as "720p\_422\_60\_donkey")  
Name of a clip file (such as "rafting\_720p\_5994.cpl.xml")  
Name of a playlist file (such as "Canyon•documentary.espl.xml")  
Sequential position of a clip in a playlist

## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Media management (continued)</b>			
Switch to a new playlist	SwitchPlaylist• <b>X3</b> • <b>X4</b> ←	OK←	Set playlist <b>X4</b> to start automatically on channel <b>X3</b> once the currently-running clip ends.
Example:	SwitchPlaylist•1•Canyon•Documentary. esp1.xml←	OK←	Set the canyon documentary playlist to start automatically on channel 1 once the currently-running playlist ends.
Clear a playlist	ClearPlaylist• <b>X4</b> ←	OK←	Clear all clips from a playlist.
Delete a playlist	DeletePlaylist• <b>X4</b> ←	OK←	Delete a playlist.
<b>Playback commands</b>			
Play	Play• <b>X3</b> ←	OK←	Play the clip or playlist that is currently loaded on channel <b>X3</b> .
Play with effects	Play• <b>X3</b> • <b>X6</b> ←	OK←	Play the clip or playlist that is currently loaded on channel <b>X3</b> in a direction and speed specified by <b>X6</b> .
Example 1:	Play•1•2.5←	OK←	Play channel 1 video forward at 2.5 times normal speed.
Example 2:	Play•1•-1.0←	OK←	Play channel 1 video backwards at normal speed.
	<b>NOTE:</b> The audio portion of the clip is active only when the playback speed is +1.0.		
Pause	Pause• <b>X3</b> ←	OK←	Pause the clip that is currently playing on channel <b>X3</b> .
Stop	Stop• <b>X3</b> ←	OK←	Stop the clip that is currently playing on channel <b>X3</b> .
Frame forward and frame backward	FrameAdvance• <b>X3</b> • <b>X7</b> ←	OK←	Jump forward or backward <b>X7</b> frames in the video <b>paused</b> in channel <b>X3</b> .
	<b>NOTE:</b> The clip must have been started and then paused for this command to have any affect. If the clip is running or has not been started, the media player responds with <b>OK</b> , but there is no affect on the video display.		
Next	Next• <b>X3</b> ←	OK←	Jump to the next clip in the currently loaded playlist.
	<b>NOTE:</b> The media player responds with <b>ERROR</b> if no playlist is loaded.		
Previous	Previous• <b>X3</b> ←	OK←	Jump to the previous clip in the currently loaded playlist.
	<b>NOTE:</b> The media player responds with <b>ERROR</b> if no playlist is loaded.		
Seek	Seek• <b>X3</b> • <b>X8</b> ←	OK←	Jump to the specified frame ( <b>X8</b> ) in the clip that is currently playing or paused on channel <b>X3</b> .
	<b>NOTE:</b> The media player responds with <b>ERROR</b> if no playlist is loaded.		
	<b>KEY:</b>		
	<b>X3</b> = Output	1 = channel 1	2 = channel 2
	<b>X4</b> = Playlist name	Name of a playlist file (such as "Canyon•documentary. esp1.xml")	
	<b>X6</b> = Play speed	Speed at which to play video, where:	
		1.0 is normal speed, 2.0 is 2x normal speed, and so on	
		A positive value (+) is forward video (+ is assumed if no direction is specified)	
		A negative value (-) is reverse video	
		Fractional speeds are rounded up or down to the 3rd decimal place (0.000)	
	<b>X7</b> = Frame count for advance command	Number of video frames to jump forward or backward, where:	
		A positive value (+) is forward (+ is assumed if no direction is specified)	
		A negative value (-) is reverse	
	<b>X8</b> = Time for seek command	nn:nn.nn ("hour": "minute": "second": "frame")	

## Command and Response Table for MSVPP Commands, continued

Command (host to unit)	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Playlist properties</b>			
<b>NOTE:</b> Property names are case sensitive.			
Set playlist properties	SetPlaylistProperties• <b>X4</b> • <b>X9</b> • <b>X10</b> ←	OK←	Set the property <b>X9</b> to a value of <b>X10</b> for playlist <b>X4</b> . Include multiple property names ( <b>X9</b> s) and values ( <b>X10</b> s) by separating them with spaces (•s) (example 2).
Example 1:	SetPlaylistProperties•Canyon documentary.espl.xml•StartTime•00:01:30:00←	OK←	Set the Canyon documentary to start playing at 1 minute, 30 seconds, and 00 frames, based on the LTC time reference.
Example 2:	SetPlaylistProperties•Canyon documentary.espl.xml•StartTime•00:01:30:24•StopTime•00:11:30:00←	OK←	Set the Canyon documentary to start playing at 1 minute, 30 seconds, and 00 frames and stop playing at 11 minutes, 30 seconds, and 00 frames, based on the external LTC time reference.
View playlist properties	GetPlaylistProperties• <b>X4</b> • <b>X9</b> ←	PlaylistProperty•"X9"•"X10"← PlaylistProperty←	Get the property variable ( <b>X10</b> ) for the listed playlist property ( <b>X4</b> • <b>X9</b> ). Include multiple property names ( <b>X9</b> s) by separating them with spaces (•s) (example 2). If no property is specified, the media player returns all playlist properties (example 3).
Example 1:	GetPlaylistProperties•Canyon documentary.espl.xml•TimecodeMode←	PlaylistProperty•"TimecodeMode"•"generate"← PlaylistProperty←	
Example 2:	GetPlaylistProperties•Canyon documentary.espl.xml•TimecodeMode•PlayAt←	PlaylistProperties•"TimecodeMode"•"generate"← PlaylistProperties•"PlayAt"•"01:00:00"← PlaylistProperties←	
Example 3:	GetPlaylistProperties•Canyon documentary.espl.xml←	PlaylistProperties•"TimecodeMode"•"generate"← PlaylistProperties•"Path"•"Canyon\documentary.espl.xml"← PlaylistProperties•"StartTime"•"00:59:00:00"← PlaylistProperties•"PlayAt"•"01:00:00:00"← PlaylistProperties•"StopTime"•"01:02:00:00"← PlaylistProperties←	
Delete playlist properties	DeletePlaylistProperties• <b>X4</b> • <b>X9</b> ←	OK←	Delete one or more playlist properties. Include multiple property names ( <b>X9</b> s) by separating them with spaces (•s).
Example:	DeletePlaylistProperties•Canyon\documentary.espl.xml•PlayAt•StartTime←		Delete the "PlayAt" and "StartTime" properties from the Canyon documentary playlist.

<b>KEY:</b>	<b>X4</b> = Playlist name	Name of a playlist file (such as "Canyon\documentary.espl.xml")
	<b>X9</b> = Property name	"PlayAt", "StartTime", "StopTime", or "TimecodeMode"
	<b>X10</b> = Playlist property value	If <b>X9</b> = "TimecodeMode": If <b>X9</b> = "PlayAt", "StartTime", or "StopTime": If <b>X9</b> = "Path":
		<b>X10</b> = "Disabled", "Generate", or "Receive" <b>X10</b> = <i>nn:nn:nn</i> (hours:minutes:seconds:frame) <b>X10</b> = the path to the playlist file (an empty character if the file is in the root playlist folder)

## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Timecode commands</b>			
<b>NOTES:</b> <ul style="list-style-type: none"> <li>Immediately after loading a clip, the playlist property times takes precedence. If you load a clip then send a tplaylist command, that command takes precedence.</li> <li>Timecode (X8) values associated with the tplaylist and tstopat commands must be consistent with the frame rate of the currently selected clip and the timecode values entered for a playlist must be consistent with the framerate of the clips included in that playlist.</li> </ul>			
Set timecode mode to generate	TcGenerate•X8←	OK←	Generate timecode as a master and issue the timecode X8 as a jam sync.
Set timecode mode to receive	TcReceive←	OK←	Receive timecode as a receiver and loop it out on the rear panel Lock Out connector.
Set timecode mode	SetTimecodeMode•X11←	OK←	Set the timecode mode to X11.
View timecode mode	GetTimecodeMode←	TimecodeMode•X11←	
Set timecode receive mode variable	SetTimecodeOpMode•X12←	OK←	Set the timecode receive mode to X12.
View timecode receive mode settings	GetTimecodeOpMode←	TimecodeOpMode•X12←	
Get current timecode reference	GetTimecodeValue←	TimecodeValue•X8←	Display the LTC time code value at the instant the media player receives the command.
Start timecode	TcStart•X3←	OK←	Starts the timecode running (assumes that the media player is in timecode generate mode).
Set "start at" time	TcPlayAt•X3•X8←	OK←	Set the timecode startat time.
Set "stop at" time	TcStopAt•X3•X8←	OK←	Set the timecode stopat time. The display goes black after X12.
<b>Loop commands</b>			
Turn loop on	Loopon•X3←	OK←	The loaded presentation automatically restarts after it completes.
Turn loop off	Loopoff•X3←	OK←	The loaded presentation runs to completion and stops.
View loop mode	GetLoopMode←	LoopMode•X13•X13←	Loop status (X13) is reported for channel 1 only if in 1-channel mode or in channel 1•channel 2 order if in either 2-channel or 2-channel locked mode.
<b>KEY:</b> <ul style="list-style-type: none"> <li>X3 = Output</li> <li>X8 = Frame count for assorted timecode commands</li> <li>X11 = Timecode mode</li> <li>X12 = Timecode receive mode setting</li> <li>X13 = On/off (audio mute, loop, input trigger)</li> </ul>			
1 = channel 1    2 = channel 2    1,2 = both channels nn:mm:ss (hour:"minute":second:"frame") "timecodeGenerate" or "timecodeReceive" "chase" or "trigger" Ø = off    1 = on			

## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description																
<b>Video mode</b>																			
<b>NOTES:</b> <ul style="list-style-type: none"> <li>See <a href="#">page 3</a> for detailed descriptions of the functions of the video modes.</li> <li>In 2-channel or 2-channel locked mode, the channels share the same clock reference. Both channels are constrained to operate at the same resolution and frame rate, which is set by loading a clip or playlist. The parameters of the last clip loaded take precedence.</li> </ul>																			
Set 1-channel mode	SetVideoMode•1_channel1 ←	OK ←																	
Set 2-channel mode	SetVideoMode•2_channel1 ←	OK ←																	
Set 2-channel locked mode	SetVideoMode•2_channel1_locked ←	OK ←																	
View video mode	GetVideoMode ←	VideoMode• <a href="#">K14</a> ←																	
<b>Colorspace</b>																			
<b>NOTES:</b> <ul style="list-style-type: none"> <li>The player must be correctly configured for the colorspace that you select, or else the player responds with ERROR.</li> <li>You can configure the media player signal combinations that are not defined within the video payload identifier specification (SMPTPE 352); for example single channel, dual link HD-SDI operation with 12-bit, 4:2:2 color sampling and the RGB color space. Some displays may not correctly display such an image or may require manual adjustment. The video payload identifier is updated correctly when the next valid SMPTPE 352 format is selected</li> </ul>																			
Set the colorspace	SetColorspace• <a href="#">K13</a> • <a href="#">K16</a> ←	OK ←	Set the channel 1 analog video to RGB.																
<i>Example:</i>	SetColorspace•ch1.video.dac•RGB ←	OK ←	This command can be with or without the channel output parameter ( <a href="#">K16</a> ).																
View the colorspace	GetColorspace ←	Colorspace• <a href="#">K13</a> • <a href="#">K16</a> ←	If no <a href="#">K13</a> is specified, the player responds with the colorspace ( <a href="#">K16</a> ) for both analog outputs and the HD-SDI outputs.																
<i>Example 1:</i>	GetColorspace ←	Colorspace•"video.HDSDI"•"rgb" ←																	
		Colorspace•"ch1.video.dac"•"rgb" ←																	
		Colorspace•"ch2.video.dac"•"rgb" ←																	
		Colorspace ←																	
<i>Example 2:</i>	GetColorspace•ch2.video.dvi ←	Colorspace•"ch2.video.dvi"•" ←	No colorspace ( <a href="#">K16</a> ) is assigned to the digital portion of the channel 2 DVI connector.																
		Colorspace ←																	
<b>KEY:</b> <table border="0"> <tr> <td><a href="#">K3</a></td> <td>= Output</td> <td>1 = channel 1</td> <td>1,2 = both channels</td> </tr> <tr> <td><a href="#">K14</a></td> <td>= Video mode</td> <td>"1_channel1", "2_channel1", or "2_channel1_locked"</td> <td></td> </tr> <tr> <td><a href="#">K13</a></td> <td>= Video output</td> <td>video.hdsdi = HD-SDI output video (channel 1 <b>and</b> channel 2)</td> <td>chn.video.dac = channel n analog video    chn.video.dvi = channel n digital video</td> </tr> <tr> <td><a href="#">K16</a></td> <td>= Colorspace</td> <td>"rgb" or "yprpb•bt.709"</td> <td></td> </tr> </table>				<a href="#">K3</a>	= Output	1 = channel 1	1,2 = both channels	<a href="#">K14</a>	= Video mode	"1_channel1", "2_channel1", or "2_channel1_locked"		<a href="#">K13</a>	= Video output	video.hdsdi = HD-SDI output video (channel 1 <b>and</b> channel 2)	chn.video.dac = channel n analog video    chn.video.dvi = channel n digital video	<a href="#">K16</a>	= Colorspace	"rgb" or "yprpb•bt.709"	
<a href="#">K3</a>	= Output	1 = channel 1	1,2 = both channels																
<a href="#">K14</a>	= Video mode	"1_channel1", "2_channel1", or "2_channel1_locked"																	
<a href="#">K13</a>	= Video output	video.hdsdi = HD-SDI output video (channel 1 <b>and</b> channel 2)	chn.video.dac = channel n analog video    chn.video.dvi = channel n digital video																
<a href="#">K16</a>	= Colorspace	"rgb" or "yprpb•bt.709"																	



## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Color wash</b>			
<b>NOTES:</b>	<ul style="list-style-type: none"> <li>The color wash command works even when the clip is paused.</li> <li>The color wash effect is not shown on the front panel video monitor of the media player.</li> <li>The color wash settings are lost when power is removed from the media player.</li> </ul>		
Color wash	CoLoRwash• <b>X3</b> • <b>X17</b> • <b>X17</b> • <b>X17</b> • <b>X17</b> • <b>X19</b> • <b>X19</b> • <b>X19</b> ←	OK←	Immediately transition to any defined color. The color values ( <b>X17</b> s) are entered in RGB order. The alpha value ( <b>X18</b> ) is the opacity of the color wash, where a value of 255 = 100%. For best results use a time value ( <b>X19</b> ) of 4 seconds or less. Completely (100%) fade the channel 1 image to white when the video clip ends. The fade takes 3.5 seconds.
Example:	CoLoRwash•1•255•255•255•3•5←	OK←	
<b>Sync</b>			
<b>NOTES:</b>	<ul style="list-style-type: none"> <li>Media players with serial numbers 9600-01 through 9600-50 support the master, esgen, and esgenlegacy sync types only. See the front panel <b>About menu</b> on page 37 in the "Operation" section to identify the serial number.</li> <li>Only JMP 9600 2K units support ES genlock ("esgen") and MS genlock ("esgenlegacy").</li> <li>When the player responds to the <b>setgenlockmode</b> command, it resets the clocks. This can cause a delay of several seconds. Therefore, Extron recommends that you send the command only during configuration or reset routines and not every show cycle.</li> </ul>		
Set sync mode	SetGenLockMode• <b>X20</b> ←	OK←	See the <b>NOTE</b> under <b>X20</b> in "Symbols" on page 59 for definitions.
View sync mode	GetGenLockMode←	GenLockMode• <b>X20</b> ←	
<b>HD-SDI VPI enable</b>			
<b>NOTE:</b>	The player ships with the dual-link HD-SDI VPI tag on by default. You may choose to turn it off for backwards compatibility or legacy support.		
Set HD-SDI VPI enable	SetHdsdIvpiEnable• <b>X21</b> ←	OK←	
View HD-SDI VPI enable	GetHdsdIvpiEnable←	HDSDIVPIEnable• <b>X21</b> ←	
<b>HD-SDI mode</b>			
Set HD-SDI mode	SetHdsdIMode• <b>X22</b> ←	OK←	Set the HD-SDI mode.
View HD-SDI mode	GetHdsdIMode←	HDSDIMode• <b>X22</b> ←	
<b>KEY:</b>	<p><b>X3</b> = Output</p> <p><b>X17</b> = Color value</p> <p><b>X18</b> = Alpha blend</p> <p><b>X19</b> = Time</p> <p><b>X20</b> = Genlock mode</p> <p><b>X21</b> = HD-SDI enable state</p> <p><b>X22</b> = HD-SDI mode</p> <p>1 = channel 1      2 = channel 2      1,2 = both channels</p> <p>000 (none) through 255 (maximum)</p> <p>000 through 255</p> <p>0.00 (seconds) through 255.0</p> <p>"master", "esgen", "esgenlegacy", "blackburst_ntsc", "blackburst_pal", or "trisyndch"</p> <p>0 = not enabled, 1 = enabled</p> <p>"single", "dual_422_12", "dual_444_10", or "dual_444_12" or "dual_422_hfr"</p>		
<b>NOTE:</b>	The "dual_422_hfr" high frame rate, available on the JMP 9600 2K model only, supports resolutions of up to 1920x1080 and 2048x1080 at 48, 50 and 60 Hz. The player must be set for 2-channel-locked mode to select this rate (see <b>High Frame Rate</b> on page 92 in the "Detailed System Interaction" section for more details on this mode).		

## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Video mute</b>			
Mute output video	VideoOff•X3←	OK←	
Unmute output video	VideoOn•X3←	OK←	
<b>Audio delay</b>			
<b>NOTES:</b> <ul style="list-style-type: none"> <li>• Leading zeroes are accepted but not required.</li> <li>• Positive values <b>delay</b> the audio with respect to the video.</li> <li>• Negative values <b>advance</b> the video with respect to the audio.</li> <li>• If no polarity is specified in the command, positive (+) is assumed.</li> </ul>			
Set the audio delay	SetAudioDelay•X3•X23←	OK←	Set the amount of delay between the video and audio outputs. X23 is in milliseconds.
View audio delay	GetAudioDelay•X3←	AudioDelay•X3•X23← AudioDelay←	
Example (1 channel):	GetAudioDelay•1←	AudioDelay•1•10←	The audio delay on output 1 is 10 milliseconds.
Example (2 channels):	GetAudioDelay•1,2←	AudioDelay•1•10← AudioDelay•2•-25←	The audio delay on output 1 is 10 milliseconds. The audio delay on output 2 is -25 milliseconds
<b>Audio mute</b>			
<b>NOTE:</b> Audio is unmuted (is output) when power is cycled.			
Mute the audio	SetAudioMute•X3•1←	OK←	Mute disables the audio output from all 16 audio channels when the media player is in 1-channel mode. Mute disables audio channels 1 through 8 for video channel 1 and audio channels 9 through 16 for video channel 2 when the media player is in 2-channel or 2-channel locked mode.
Unmute the audio	SetAudioMute•X3•0←	OK←	
View mute status	GetAudioMute•X3←	AudioMute•X3•X13← AudioMute← AudioMute•1•1← AudioMute←	
Example:	GetAudioMute•1←	AudioMute•1•1←	Output 1 audio is muted
<b>KEY:</b> X3 = Output X23 = Delay X13 = On/off (audio mute, loop, input trigger) 1 = channel 1      2 = channel 2      1,2 = both channels ± up to 500 milliseconds 0 = off or 1 = on			



## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Audio volume</b>			
<b>NOTES:</b>			
	<ul style="list-style-type: none"> <li>Leading zeroes are accepted but not required.</li> <li>For any value other than zero, the negative sign must be entered.</li> </ul>		
Set the audio volume	SetAudioVolume• <b>X3</b> • <b>X24</b> left• <b>X24</b> right←	OK←	Enter volume ( <b>X24</b> ) in left channel•right channel order.
<i>Example (1 channel):</i>	SetAudioVolume•1←	OK←	Set channel 1 audio to 0 dB of attenuation (full volume).
View audio volume	GetAudioVolume• <b>X3</b> ←	AudioVolume• <b>X3</b> • <b>X24</b> left• <b>X24</b> right← AudioVolume←	
<i>Example (2 channels):</i>	GetAudioVolume•1,2←	AudioVolume•1•0•0← AudioVolume•2•-144•-144← AudioVolume←	The channel 1 audio has 0 dB of attenuation. The channel 2 audio has full attenuation (minimal volume).
<b>License keys</b>			
Install a license key	InstallLicense• <b>X25</b> ←	OK←	Install a license (enable a media player function).
View all installed licenses	GetInstalledLicenses←	License• <b>X26</b> ← License←	The media player returns as many licenses ( <b>X26</b> s) as are installed on the media player.
<b>Serial port Remote 1 configuration</b>			
<b>NOTES:</b>			
	<ul style="list-style-type: none"> <li>Serial port Remote 2 is not configurable. It is for factory use only.</li> <li>You <b>can</b> set the serial port configuration and mode via an MSVPP command and connected to serial port Remote 1, but it is <b>not</b> recommended. Changing the configuration or mode while connected via the serial port disconnects the computer from the port.</li> </ul>		
Configure serial port	SetSerialConfig•1• <b>X27</b> • <b>X29</b> • <b>X28</b> • <b>X30</b> ←	OK←	Set the baud rate ( <b>X27</b> ), data bits ( <b>X29</b> ), parity ( <b>X28</b> ), and stop bits ( <b>X30</b> ) for serial port Remote 1.
View serial port configuration	GetSerialConfig•1←	SerialConfig•1• <b>X27</b> • <b>X29</b> • <b>X28</b> • <b>X30</b> ←	
Set serial port mode	SetSerialMode•1• <b>X31</b> ←	OK←	Set serial port Remote 1 to control. The port accepts MSVPP commands, the media player acts on them, and makes responses on the port.
<i>Example 1:</i>	SetSerialMode•1•controlMSVPP←	OK←	Set serial port Remote 1 to pass-through. The media player routes commands and responses bidirectionally between controlling and controlling devices.
<i>Example 2:</i>	SetSerialMode•1•passthrough←	OK←	
View serial port mode	GetSerialMode•1←	SerialMode•1• <b>X31</b> ←	
<b>KEY:</b>			
<b>X3</b>	= Output	1 = channel 1	2 = channel 2
<b>X24</b>	= Volume	0 (no attenuation, full volume)	through -144 (full attenuation, audio effectively muted)
<b>X25</b>	= License key	32 alphanumeric digits	
<b>X26</b>	= License	Installed license (such as "V2HD" or "V22K"	
<b>X27</b>	= Serial port baud rate	300, 600, 1200, 1800, 2400, 4800, 9600, 19200, 38400, 57600, or 115200	
<b>X28</b>	= Parity	"none", "even", or "odd"	
<b>X29</b>	= Data bits	7 or 8	
<b>X30</b>	= Stop bits	1 or 2	
<b>X31</b>	= Serial port mode	"controlMSVPP", "disabled", or "passthrough"	

## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Ethernet configuration</b>			
<b>NOTE:</b> You can set the Ethernet port configuration variables via an MSVPP command and connected to that LAN port, but it is <b>not</b> recommended. Changing the configuration variables for a port while connected via that LAN port disconnects the computer from the port.			
Set IP configuration	SetIpConfig • $\boxed{X32}$ • $\boxed{X33}$ IP address • $\boxed{X33}$ Netmask ←	OK ←	Disable DHCP (if enabled) and set the following IP address and Netmask (subnet mask) variables for port $\boxed{X32}$ . Disable DHCP. Set the port 2 IP address to 10.13.197.26 and the subnet mask to 255.255.0.0.
<b>NOTE:</b> Use the SetDhcp command to turn DHCP on.			
View IP configuration	GetIPConfig • $\boxed{X32}$ ←	IPConfig • $\boxed{X32}$ • $\boxed{X33}$ IP address • $\boxed{X33}$ Netmask ←	Set the gateway address of port $\boxed{X32}$ to $\boxed{X33}$ . The Ethernet port ( $\boxed{X32}$ ) must be connected to a server or else the media player responds with <b>ERROR</b> . Set the gateway address of port 2 to 10.13.197.25.
Set gateway address	SetGateway • $\boxed{X32}$ • $\boxed{X33}$ ←	OK ←	
<i>Example:</i>	SetGateway • 2 • 10.13.197.25 ←	OK ←	The Ethernet port ( $\boxed{X32}$ ) must be connected to a DHCP server or else the media player responds with <b>ERROR</b> .
View gateway address	GetGateway ←	Gateway • $\boxed{X32}$ • $\boxed{X33}$ ← Gateway ←	
Set DHCP on	SetDHCP • $\boxed{X32}$ ←	OK ←	
<b>NOTE:</b> Use the SetIpConfig command to turn DHCP off.			
View DHCP status	GetDHCP • $\boxed{X32}$ ←	Dhcp • $\boxed{X32}$ • $\boxed{X34}$ ← Dhcp ←	
View MAC address	GetMacAddr • $\boxed{X32}$ ←	MacAddr • $\boxed{X32}$ • $\boxed{X35}$ ← MacAddr ←	The MAC address is view-only.
<b>KEY:</b> $\boxed{X32}$ = Ethernet port			
<b>NOTE:</b> "Eth0" is accepted the same as "Eth1" in a Set command. "Eth0" is never reported in the response.			
$\boxed{X33}$ = IP address, netmask, gateway address			
$\boxed{X34}$ = DHCP on/off status			
$\boxed{X35}$ = Hardware (MAC) address			

## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Digital inputs and relays commands</b>			
<b>NOTE:</b> The commands in this section enable the media player to use its digital inputs and relay outputs ports to control or be controlled by one or more external devices.			
View the status of one or more inputs	GetInput• <b>X36</b> ←	inputstate•“ <b>X36</b> <b>X37</b> ”←	Poll multiple inputs ( <b>X36</b> s) by separating them with spaces (•s) (example 2). If no input is specified, the media player returns the level on all inputs (example 3). Input 3 is high (logic 1). Input 1 is low (logic 0) and input 2 is high (logic 1).
Example 1:	GetInput•3←	inputstate•“3+”←	
Example 2:	GetInput•1•2←	inputstate•“1-”•“2+”←	
Example 3:	GetInput←	inputstate•“1-”•“2+”•“3+”•“4-”←	
View the status of one or more outputs	GetOutput• <b>X36</b> ←	outputstate•“ <b>X36</b> <b>X37</b> ”←	Poll multiple outputs ( <b>X36</b> s) by separating them with spaces (•s). If no output is specified, the media player returns the level on all outputs. Set the Digital Inputs ports to automatically report a status change such as a switch closure.
Set input trigger on	SetInputTrigger•0n←	OK←	
<b>NOTE:</b> If the input trigger is on, the media player sends an input state message to the connected computer when the state of an input changes. The message is similar to the response to the GetInput message (above) and contains the current state of all inputs. The show control system must determine which input or inputs have changed and act accordingly.			
Set input trigger off	SetInputTrigger•0ff←	OK←	Set the Digital Inputs ports to ignore a status change.
Set output level	Setoutput• <b>X36</b> <b>X37</b> ←	outputstate•“1 <b>X37</b> ”•“2 <b>X37</b> ”•“3 <b>X37</b> ”•“4 <b>X37</b> ”←	Set multiple output levels ( <b>X36</b> s) by separating them with spaces (•s) (example 2).
Example 1:	Setoutput•1+←	outputstate•“1+”•“2+”•“3+”•“4-”←	
Example 2:	Setoutput•2-•3-←	outputstate•“1+”•“2-”•“3-”•“4-”←	
<b>Time of day</b>			
Set the date and time	SetDate• <b>X38</b> • <b>X39</b> ←	OK←	
Example	SetDate•10/15/2010•10:20:00←	OK←	
View the date and time	GetDate←	Date• <b>X38</b> • <b>X39</b> ←	
<b>KEY:</b> <b>X36</b> = Digital Input port or Relay output port <b>X37</b> = Level <b>X38</b> = Date <b>X39</b> = Time			
1, 2, 3, or 4 “+” = high level, logic 1; “-” = low Level, logic 0 In the format: MM/DD/YYYY where: MM = month: 01 (Jan) through 12 (Dec) DD = day: 01 through 31 YYYY = year: 1970 through 2037 HH = hour: 00 through 23 MM = minutes: 00 through 59 SS = seconds: 00 through 59			

## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Device parameters</b>			
<p><b>NOTE:</b> If there are spaces (•) in the location or name identifier (X40) (such as <i>Park Visitor's Center</i>, shown in the <i>SetDeviceName</i> command example 2, below), the entire name must be enclosed in double quotation marks in the set command (such as "Park Visitor's Center"). Quotes are not required for a single word identifier (such as <i>Park</i>). The identifier is always in quotes in the <i>GetDeviceName</i> response.</p>			
Set the device location	SetDeviceLocation•X40←	OK←	
Example 1:	SetDeviceLocation•Theater←	OK←	
Example 2:	SetDeviceLocation•"Theater•1"←	OK←	
View the device location	GetDeviceLocation•X40←	DeviceLocation•"X40"←	
Set the device name	SetDeviceName•X40←	OK←	
Example 1:	SetDeviceName•Park←	OK←	
Example 2:	SetDeviceName•"Park Visitor's Center"←	OK←	
View the device name	GetDeviceName•X40←	DeviceName•"X40"←	
View disk information	GetDiskInfo←	diskinfo•X41[total]•X41[free]←	Show the total capacity of the hard drives (X41[total]) and the amount of free space (X41[free]). The returned values are in 1024-byte blocks.
<b>Reboot</b>			
Reboot the media player	Reboot←	OK←	Reboot the media player.
<p><b>KEY:</b> X40 = Identifier X41 = Memory capacity or availability</p> <p>Location or name In 1024-byte blocks</p>			

## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Information requests</b>			
<b>TIP:</b> Copy the folder and filename in the response to the view current clip and view current playlist commands to the clipboard of your computer to paste them into scripts or DataViewer Send Command field. This frees you from typing in long, complex, and case sensitive names.			
View the output video mode	GetChannelCount ←	ChannelCount • X42 ←	The media player is in either 2-channel or 2-channel locked mode.
<i>Example:</i>	GetChannelCount ←	ChannelCount • 2 ←	
View output resolution and frame rate	GetOutputResolution • X43 ←	OutputResolution • X43 • X43 • X43 • X43 • X43 ←	The resolution (X43) (horizontal) • (X43) (vertical) is reported, followed by scan type (X44) and frame rate (X45). The channel 1 output is 1920 x 1080, interlaced, at 48 fps. Some players may report "JMP 9600".
<i>Example:</i>	GetOutputResolution • 1 ←	OutputResolution • 1 • 1920 • 1080 • i • 48 ←	
View player type	GetPlayerType ←	PlayerType • ES9600 • <version number> ←	Show whether the player is playing, paused, or stopped.
View state	GetState • X46 ←	State • X46 ←	Show the folder (X41) and name (X42) of the currently-loaded clip. If no clip is loaded, the quotes that contain the X41/X42 response are empty.
View current clip	GetStateEx • X43 • Clip ←	StateEx • X43 • "clip" • X41 / X42 ←	Show the name of the currently-loaded playlist. If no playlist is loaded, the quotes that contain the X41 response is empty.
View current playlist	GetStateEx • X43 • Playlist ←	StateEx • X43 • "playlist" • X44 ←	
<i>Example:</i>	GetStateEx • 1 • Clip ←	StateEx • 1 • "clip" • 720p_422_60_raffing/raffing_720p_5994_cp1.xml ←	
View duration	GetStateEx • X43 • Duration ←	StateEx • X43 • "duration" • X47 ←	Show the length of the currently-loaded clip in total frames. If no clip is loaded, the X47 response is "0".
View duration (timecode)	GetStateEx • X43 • Duration_timecode ←	StateEx • X43 • "duration_timecode" • X48 ←	Show the length of the currently-loaded clip as a timecode count. If no clip is loaded, the X48 response is "00:00:00".
View loop status	GetStateEx • X43 • Loop ←	StateEx • X43 • "Loop" • X49 ←	Show the loop function status for channel X43.
View state	GetStateEx • X43 • Playstate ←	StateEx • X43 • "playstate" • X46 ←	Show whether the player is playing, paused, or stopped.
<b>KEY:</b>			
X1	Folder name	Name of a DCP folder (such as "720p_422_60_donkey")	
X2	Clip name	Name of a clip file (such as "raffing_720p_5994_cp1.xml")	
X3	Output	1 = channel 1 2 = channel 2	1, 2 = both channels
X4	Playlist name	Name of a playlist file (such as "Canyon_documentary.esp1.xml")	
X8	Frame count for view duration (timecode) command	nn:nn:nn ("hour":"minute":"second"."frame")	
X13	On/off (audio mute, loop, input trigger)	0 = off or 1 = on	
X42	Video mode / channel availability	1 (1-channel mode) or 2 (2-channel mode or 2-channel locked mode)	
X43	Horizontal or vertical resolution	<b>Horizontal:</b> 1280, 1920, or 2048 <b>Vertical:</b> 780 or 1080	
X44	Scan type	i (interlaced) or p (progressive)	
X45	Frame rate	23.98, 24, 24, 29.97, 30, 48, 50, 59.94, or 60	
X46	Player state	"playing", "paused", or "stopped"	
X47	Frame count	Number of frames (total or current position)	

## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description																												
<b>Information requests (continued)</b>																															
View position (frame count)	GetStateEx• <b>X3</b> •Position←	StateEx• <b>X3</b> •"position"•"X47"↵ StateEx↵	Show the position of the currently-loaded clip (or clip as part of a playlist) in frame count.																												
View position (timecode)	GetStateEx• <b>X3</b> •Position_Timecode←	StateEx• <b>X3</b> •"position_timecode"•"X48"↵ StateEx↵	Show the position of the currently-loaded clip (or clip as part of a playlist) as a timecode count.																												
View position (percentage)	GetStateEx• <b>X3</b> •Position_percentage←	StateEx• <b>X3</b> •"position_ percentage"•"X49"↵StateEx↵	Show the position of the currently-loaded clip (or clip as part of a playlist) as a percentage.																												
View speed	GetStateEx• <b>X3</b> •Speed←	StateEx• <b>X3</b> •"clip"•"X49"↵ StateEx↵	Show the speed of the currently-loaded clip (or clip as part of a playlist).																												
<p><b>NOTE:</b> You can use the "GetStateEx" command described above to request the status of multiple parameters by separating them with spaces (•) as demonstrated below. Valid parameters and the returned values are:</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Value</th> <th>Parameter</th> <th>Value</th> <th>Parameter</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Clip</td> <td><b>X1</b>/<b>X2</b></td> <td>PlayList</td> <td><b>X4</b></td> <td>Duration</td> <td><b>X8</b></td> </tr> <tr> <td>Playstate</td> <td><b>X46</b></td> <td>Position</td> <td><b>X47</b></td> <td>Position_timecode</td> <td><b>X48</b></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>Position_percentage</td> <td><b>X49</b></td> </tr> <tr> <td>View multiple parameters</td> <td>GetStateEx•<b>X3</b>•{parameter1}•{parameter2}•...•{parameter<sup>n</sup>}↵</td> <td>StateEx•<b>X3</b>•{parameter1}"•{value1}↵ StateEx•<b>X3</b>•{parameter2}"•{value2}↵ • • • StateEx•<b>X3</b>•{parameter<sup>n</sup>}"•{value<sup>n</sup>}↵ StateEx↵</td> <td></td> </tr> </tbody> </table>				Parameter	Value	Parameter	Value	Parameter	Value	Clip	<b>X1</b> / <b>X2</b>	PlayList	<b>X4</b>	Duration	<b>X8</b>	Playstate	<b>X46</b>	Position	<b>X47</b>	Position_timecode	<b>X48</b>					Position_percentage	<b>X49</b>	View multiple parameters	GetStateEx• <b>X3</b> •{parameter1}•{parameter2}•...•{parameter <sup>n</sup> }↵	StateEx• <b>X3</b> •{parameter1}"•{value1}↵ StateEx• <b>X3</b> •{parameter2}"•{value2}↵ • • • StateEx• <b>X3</b> •{parameter <sup>n</sup> }"•{value <sup>n</sup> }↵ StateEx↵	
Parameter	Value	Parameter	Value	Parameter	Value																										
Clip	<b>X1</b> / <b>X2</b>	PlayList	<b>X4</b>	Duration	<b>X8</b>																										
Playstate	<b>X46</b>	Position	<b>X47</b>	Position_timecode	<b>X48</b>																										
				Position_percentage	<b>X49</b>																										
View multiple parameters	GetStateEx• <b>X3</b> •{parameter1}•{parameter2}•...•{parameter <sup>n</sup> }↵	StateEx• <b>X3</b> •{parameter1}"•{value1}↵ StateEx• <b>X3</b> •{parameter2}"•{value2}↵ • • • StateEx• <b>X3</b> •{parameter <sup>n</sup> }"•{value <sup>n</sup> }↵ StateEx↵																													
<p><b>KEY:</b></p> <ul style="list-style-type: none"> <li><b>X1</b> = Folder name</li> <li><b>X2</b> = Clip name</li> <li><b>X3</b> = Output</li> <li><b>X4</b> = Playlist name</li> <li><b>X6</b> = Play speed</li> </ul> <ul style="list-style-type: none"> <li><b>X8</b> = Frame count for view duration (timecode) command</li> <li><b>X13</b> = On/off (audio mute, loop, input trigger)</li> <li><b>X46</b> = Player state</li> <li><b>X47</b> = Frame count</li> <li><b>X48</b> = Percentage</li> </ul>																															
<p>Name of a DCP folder (such as "720p_422_60_donkey")  Name of a clip file (such as "rafting_720p_5994_cp1.xml")  1 = channel 1  2 = channel 2  1, 2 = both channels  Name of a playlist file (such as "Canyon•documentary.espl.xml")  Speed at which to play video, where:  A positive value (+) is forward video (+ is assumed if no direction is specified)  A negative value (-) is reverse video  Fractional speeds are rounded up or down to the 3rd decimal place (0.000)  nn:nn:nn ("hour": "minute": "second": "frame")  0 = off  1 = on  "playing", "paused", or "stopped"  Number of frames (total or current position)  Current position in a playing clip expressed as a percentage</p>																															

## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
Information requests (continued)	View front panel temperature GetTemperature•Front•Panel←	Temperature•"front•panel1"• <b>[x49]</b> C↵ Temperature↵	Show the front panel temperature in degrees Celsius.
	View main processor temperature GetTemperature•Main•Processor←	Temperature•"main•processor"• <b>[x49]</b> C↵ Temperature↵	Show the main processor temperature in degrees Celsius.
	View temperature, both locations GetTemperature←	Temperature•"front•panel1"• <b>[x49]</b> C↵ Temperature•"main•processor"• <b>[x49]</b> C↵ Temperature↵	Show the temperature of both sensors in degrees Celsius.
	View voltage GetVoltage• <b>[x50]</b> ←	Voltage• <b>[x50]</b> • <b>[x51]</b> ↵ Voltage↵	Poll multiple sensors ( <b>[x50]</b> s) by separating them with spaces (•s) (example 2). If no sensor is specified, the media player returns the voltage on all sensors (example 3).
<b>NOTE:</b> The sensor name must be enclosed in double quotations. See Example 1 and Example 2, below.			
Example 1:	GetVoltage•"ps1•5vdc"←	Voltage•"ps1•5vdc"•"5.19•vdc"↵ Voltage↵	
Example 2:	GetVoltage•"ps1•5vdc"•"ps2•5vdc"←	Voltage•"ps1•5vdc"•"5.19•vdc"↵ Voltage•"ps2•5vdc"•"5.17•vdc"↵ Voltage↵	
Example 3:	GetVoltage←	Voltage•"ps1•5vdc"•"5.19•vdc"↵ Voltage•"ps2•5vdc"•"5.17•vdc"↵ • • Voltage•"ps2•12vdc"•"-12.70•vdc"↵ Voltage↵	

<b>KEY:</b>	<b>[x49]</b> = Temperature	<i>nn.nn</i> °C. See <b>Troubleshooting a High Temperature</b> on page 104 in the "Mounting and Maintenance" section for temperatures above 85 °C.
	<b>[x50]</b> = Voltage sensor	"ps1•5vdc" "ps1•3.3vdc" "ps1•12vdc" "ps2•5vdc" "ps2•3.3vdc" "ps2•12vdc"
<b>NOTE</b> Positive voltage sensor names <b>must not</b> include the positive sign (+); negative voltage sensor names <b>must</b> include the negative sign (-).		
	<b>[x51]</b> = Voltage	± <i>nn.nn</i> (3.3 vdc and 5 vdc sensors) or ± <i>nn.nn</i> (12 vdc sensors)

## Command and Response Table for MSVPP Commands, continued

Command	MSVPP Command (host to unit)	Response (unit to host)	Additional description
<b>Information requests (continued)</b>			
View disk information	GetDiskInfo←	diskinfo[X41]total•[X41]free↵	Show the total capacity of the hard drives ([X41]total) and the amount of free space ([X41]free). The returned values are in 1024-byte blocks.
View version	GetVersionInfo←	VersionInfo•"firmware"•"[X52]"•"[X53]"↵ VersionInfo•"LCD_FPGA"•"[X52]"•"[X53]"↵ VersionInfo•"Video_FPGA"•"[X52]"•"[X53]"↵ VersionInfo↵	Show the version of several devices.
Example:	GetVersionInfo←	VersionInfo•"firmware"•"2.06.07"•"May•19•2010"↵ VersionInfo•"LCD_FPGA"•"2.2"•"8/21"↵ VersionInfo•"Video_FPGA"•"2.7"•"4/15"↵ VersionInfo↵	
<b>NOTE:</b> The versions shown above are for example only.			
<b>KEY:</b> [X41] = Memory capacity or availability [X52] = Version [X53] = Date			



# Detailed System Interaction

This section describes the interaction of the media player and other system components at a detailed level, including:

- [Data Transfer and Firmware Upgrade](#)
- [Synchronization](#)
- [Using Digital Inputs and Relays](#)
- [Encoding Guidelines](#)

## Data Transfer and Firmware Upgrade

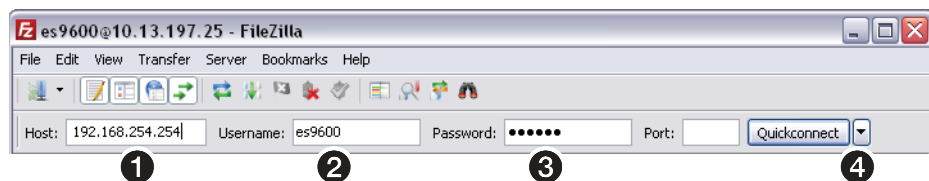
**NOTE:** The media player must run firmware version 2.06.07 or newer. If you have an older version (see the front panel [About menu](#) on page 37 in the “Operation” section to determine the firmware version), update the firmware to ensure proper operation.

Program content and firmware upgrades can be uploaded to the media player using either the LAN port and a reliable File Transfer Protocol (FTP) utility. Extron has tested the FileZilla FTP utility ([www.filezilla-project.org/](http://www.filezilla-project.org/)) with the JMP 9600:

**NOTE:** The procedures in this guide are shown using the FileZilla FTP utility. Other FTP utilities can be used, but the appearance and exact procedure may vary.

## Starting the FileZilla FTP Utility

1. Connect a computer that runs the Windows operating system to either media player LAN port (see [LAN Ports](#) on page 9), either directly or via a network.
2. Start the FTP utility (see figure 60).



**Figure 60.** FileZilla FTP Utility

3. Enter the IP address of the connected port in the **Host** field (see figure 60, ❶).

**NOTE:** If the local system administrators have not changed the value, the factory-specified default IP addresses are as follows:

**LAN 1:** 192.168.254.254      **LAN 2:** 192.168.254.253

- Enter “es9600” (without the quotes) in the Username field (see figure 60, ② on the previous page).

**NOTES:**

- The JMP 9600 is shipped password-protected. The factory configured password for all accounts on this device has been set to the device serial number. This password cannot be changed.
- The Username and Password fields are case sensitive.
- Two LAN ports allow the media player to reside on two different subnets simultaneously.

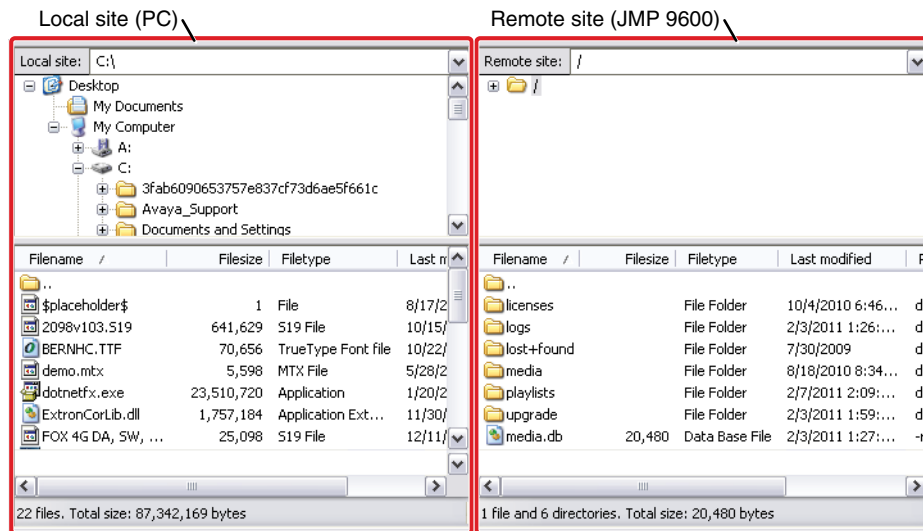
- Enter the device password in the Password field (③).

**NOTE:** No Port entry is required, but port 23 can be used to establish a secure connection (SFTP).

- Click the **Quickconnect** button (④).

See figure 61. The Remote site fields in the utility show the file contents on the JMP 9600. The Local site fields show the file contents on the computer connected to the media player.

**TIP:** Use the FileZilla Site Manager feature (click **File > Site Manager**) to save the connection details as a preset.



**Figure 61. FTP Utility Local and Remote Sites**

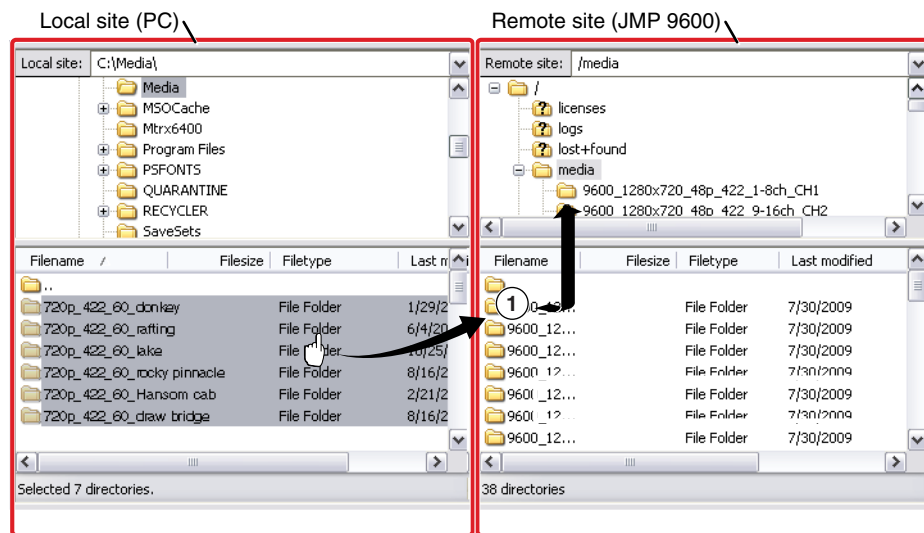
## Loading Media Folders to the Media Player

See [Encoding Guidelines](#) details on page 96 for encoding content for use on the JMP 9600.

The final encoded content (JPEG 2000 video, audio, and other associated data) is collectively referred to as a DCP folder and must be loaded on the hard drive of the JMP 9600 via FTP in order to be played.

1. Connect a computer to the media player and start the FTP utility (see [Starting the FileZilla FTP Utility](#) on the page 78).
2. Drag and drop the DCP folders (and all files within the folders) from the local site into the **Media** folder in the remote site (see a on figure 62).

**TIP:** Hold down the <Shift> key to select multiple DCP folders.



**Figure 62. Loading Media Files**

### NOTES:

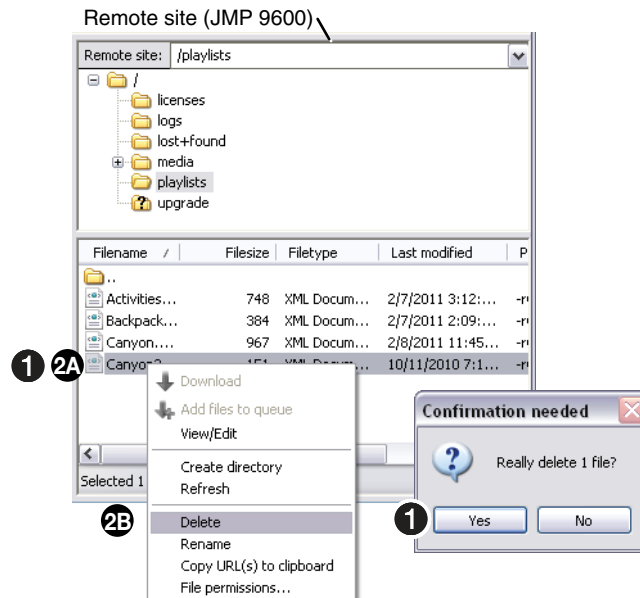
- DCP folders can be very large. The time taken to up-load depends on the file size and the bandwidth of the network connection. Ensure that the files have completely transferred to the media player before trying to play them.
- There is a delay of 10 to 15 seconds after a clip had been loaded while the media player registers it in its database. It cannot be played during this delay.

Once you have transferred the program material to the media player, you are ready to play the files (see [Play a Presentation](#) on page 37 in the Operation section).

## Deleting Folders and Individual Files from the Media Player

1. Connect a computer to the media player and start the FTP utility (see [Starting the FileZilla FTP Utility](#) on the page 78).
2. Left-click the folders and files that you want to delete (see figure 63, ①).

**TIP:** Hold down the <Shift> key to select multiple folders or files.



**Figure 63. Deleting Files from the Media Player**

3. **Right**-click among the shaded (selected) folders (2A) and files and select **Delete** (2B).

**TIP:** Or, press the keyboard <Delete> key.

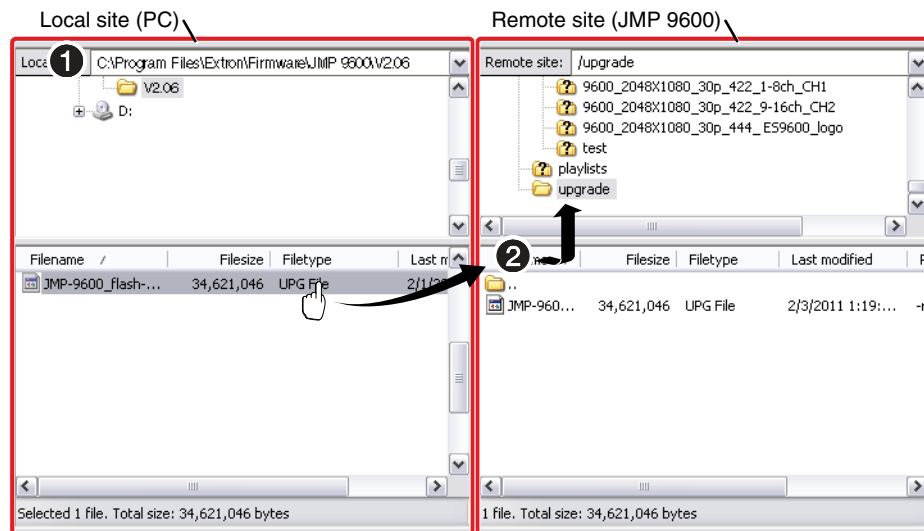
4. Left-click **Yes** to confirm the deletion (3).

## Updating Firmware

The firmware current as of this writing, version 2.06.13, has proven to be very stable and is suitable for most applications. In some limited cases, such as looping content with audio and non-integer frame rates, it may be necessary to upgrade both the JMP 9600 firmware and J2K encoder software. Please call the Extron Sales and Technical Support Hotline to determine if a firmware upgrade is necessary (see the contact numbers listed on the Extron [webpage](#) for the office nearest you). Update the firmware as described below:

1. Connect a computer to the media player and start the FTP utility (see [Starting the FileZilla FTP Utility](#) on the page 78).
2. In the local site, navigate to the folder where you saved the firmware upgrade file (see figure 64, ①).

**NOTE:** Valid firmware files must have the file extension .UPG. A file with any other extension is not a firmware upgrade.



**Figure 64. Loading a Firmware File**

3. Drag and drop the file from the local site into the Upgrade folder in the remote site (②).
4. Reboot the media player, either via the front panel (see [Reboot submenu](#) on page 30 in the “Operation” section) or via an MSVPP command (see the MSVPP [Reboot command](#) on page 73 in the “Programming Guide” section).
5. After the media player reboots, it automatically detects and installs the firmware update. The LCD displays the progress of the installation. The firmware update may take up to 20 minutes.

After the firmware installation is complete, the media player automatically deletes the firmware upgrade file.

**NOTE:** FileZilla does not automatically refresh the contents, so you will not see that the file is deleted unless you manually refresh the display.

6. Close the FTP utility.

## Synchronization

Large control systems often require a number of different pieces of equipment to operate within strict timing constraints. For example, an exhibit can use a video display with an associated multi-channel audio playback system, in which audio playback must match the video display (“lip sync”). To support complex system timing requirements in multi-unit configurations, the JMP 9600 supports the following synchronization timing references:

- **Linear timecode (LTC)** — A stream of coded time stamps encapsulated in an audio signal. The frequency of these time stamps matches video rates for the various video standards. There are three common standards in use that the media player supports:
  - **SMPTE 12M-1-2008** — Including all of the frame rates supported by the player, including:
    - **EBU** — Matches the video rate of 25 frames per second of the PAL specification that is used in the United Kingdom.
    - **Film** — Matches the video rate of 24 frames per second used in the motion picture industry.

**NOTE:** The Drop Frame timecode standard is **not** supported.

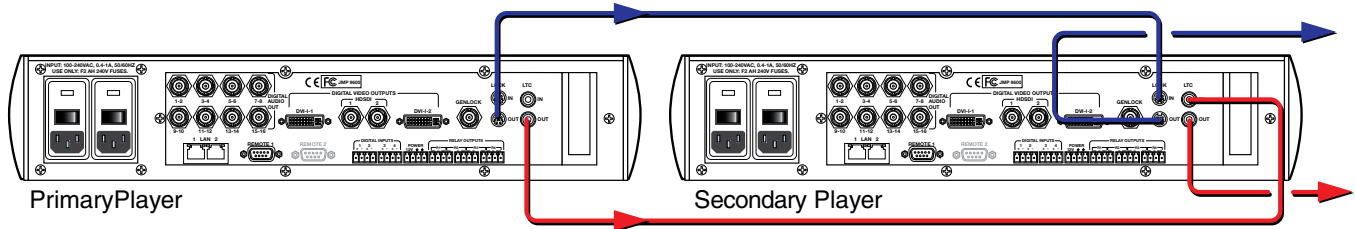
- **Traditional genlock** — A standard NTSC, PAL, or HDTV blackburst timing reference
- **Proprietary genlock** — Two timing references that are non-standard and unique to Electrosonic products that have been acquired by Extron:
  - **MSGEN genlock** — A timing reference that is native to the legacy Electrosonic MS9200 series HD Player.
  - **ESGEN genlock** — A timing reference that is native to most other former Electrosonic products.

**NOTE:** Only JMP 9600 2K units support MSGEN genlock and ESGEN genlock.

## Connections for Synchronized Multi-player Operation

The following equipment is required for an example of a small synchronized system:

- Two JMP 9600 Media Players (see figure 64, below)
- One or more LTC cables terminated with male RCA connectors (in red on figure 64)
- One or more Lock (ESGEN or MSGEN genlock) cables terminated with 6-pin mini-DIN connectors (shown in blue on figure 65)
- A computer that is running show control software
- Ethernet or serial (RS-232) remote control cabling



**Figure 65. Sample Connections for System Synchronization**

A synchronized system requires that one device in the system is configured as the primary device which generates the timing references for the entire system. All other devices in the system are configured as secondaries.

The JMP 9600 can either generate a master timing reference or operate as a receiver. For the purposes of this discussion, assume that one of the media players is configured as primary. The media player can also present some clips in primary mode and others in secondary mode.

The secondary player must be set to Chase mode (see the front panel **Video submenu** on page 32 to set the mode) to continuously lock to the primary player. In trigger mode, the secondary player starts playback at the predefined Playat time and free runs after that.

**NOTE:** The two media players in this example are designated as the “primary player” and “secondary player” for the remainder of this discussion.

The primary player distributes LTC and proprietary genlock (if configured) to all other devices in the system that need it (secondaries). Typically, a secondary generates its output based on the timing references it receives. For example a lighting system can be programmed based on the LTC it receives to generate a lighting scene or effect when a certain timecode is received.

The primary player outputs LTC on its LTC Out connector (see figure 64). The secondary player receives LTC on its LTC In connector and syncs itself to the primary player. If the primary player outputs a timecode of one minute and 28 seconds (expressed as 00:01:28:00), the secondary device follows it there. If the primary player is playing a presentation or has a presentation cued and has received the TcStart MSVPP command, the LTC counts up from the initial command. If the primary player is paused, the LTC repeats the same value. The active or static LTC value can be seen as the TC field on the front panel Channel Status screen (see the front panel **Channel status menus** on page 18 in the “Operation” section).

In an application where other components in the system need LTC, the secondary player outputs the signal on its LTC Out connector.

**NOTE:** In another application, external show control equipment could provide the LTC reference. In such an application, both media players are made secondary to the show control equipment.

If the secondary player needs an additional timing reference for more precise synchronization (see “Results of timecode and genlock timing references,” below), either the proprietary genlock timing reference or traditional genlock can provide it. In **figure 65**, on the preceding page, the primary player outputs the ESGen genlock signal on its Lock Out connector. The secondary player receives the ESGen genlock on its Lock In connector.

**TIP:** If you are using proprietary genlock in your configuration, set the player that is the LTC master to be the genlock master.

**NOTE:** If you are using traditional genlock, the media player can only input the reference and can be a genlock receiver only.

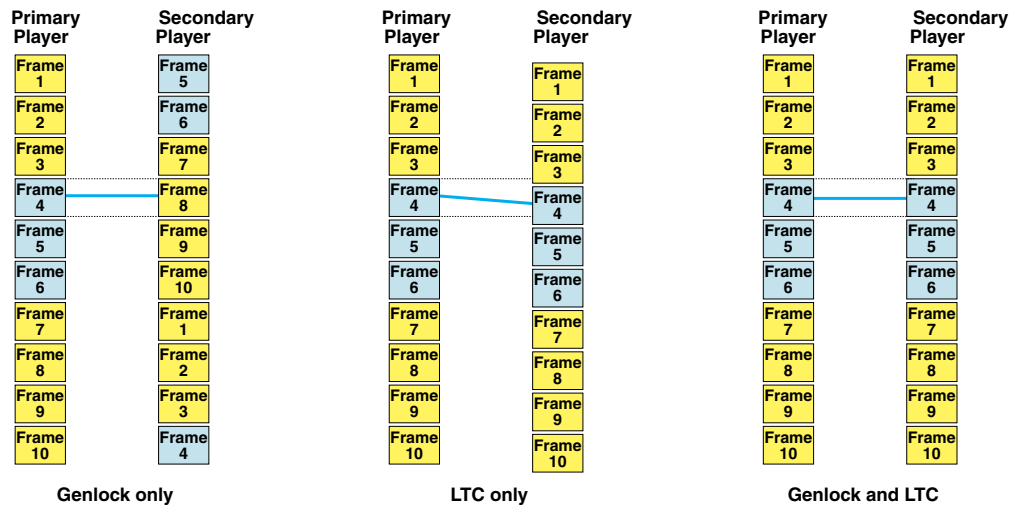
The secondary player can daisy-chain the signal on its Lock Out connector for use in an application with up to three media players. In a system with more than three devices requiring proprietary genlock, Extron recommends using the following optional Extron equipment:

- **PDA 108** Player Sync Distribution Amplifier for JMP 9600 for the ESGen genlock signal
- **DA 6A** Stereo Audio Distribution Amplifier for the LTC signal

### Results of LTC and genlock timing references

For precise frame-by-frame sync to the primary player, the secondary player needs an additional timing reference in addition to LTC; either proprietary genlock or traditional genlock (see figure 66).

- **Proprietary or traditional genlock only** — Video frame times are precisely synchronized between the players, but there is no control ensuring that both players are playing the corresponding frame.
- **LTC only** — The content is loosely synchronized with the players outputting corresponding frames, but the video frame times may be slightly shifted.
- **Proprietary or traditional genlock and LTC** — Video frames and content are precisely synchronized.



**Figure 66.** Comparison of the Effects of Timing References Applied



## ESGEN vs. traditional Genlock

The example in [figure 65](#), on page 84, uses ESGEN Genlock. Traditional genlock can also be used in many applications. See the attributes of the two timing references, below, to determine which to use in your application.

### ESGEN Genlock attributes —

- ESGEN Genlock uses the pixel clock, so it works for **all** resolutions and frame rate combinations.
- ESGEN Genlock is a proprietary signal, it can be used **only** with certain Electrosonic products acquired by Extron.
- The cable length is limited to 4 feet (1.2 m).
- The recommended limit for daisy chaining ESGEN genlock is three units. Beyond that, an Extron PDA 108 Player Sync Distribution Amplifier for JMP 9600 should be used to maintain signal integrity.

### Traditional Genlock attributes —

- Traditional Genlock is expected to be NTSC (29.97 Hz) or PAL (25 Hz), so it is limited to certain resolutions and frame rate combinations.

**NOTE:** The JMP 9600 can accept a standard NTSC standard definition bi-level genlock signal and use it to lock a 1080i signal at 59.94 FPS or 1080p signal at 29.97 FPS.

- Traditional Genlock is very common, so it can be used with a wide variety of non-Extron system components.
- The cable length can be more than 100 feet (30 m).

## Applicable MSVPP commands

The table starting below lists the MSVPP commands that you may need to configure and control a multi-player system. With the exception of **TcStart**, which can only be an MSVPP command (see the first **NOTE**, below), all of these commands can be also be accomplished using the HTML pages, as shown in the examples on the pages that follow: “Configuring LTC for Synchronized Multi-player Operation” on the next page and [Configuring Genlock for Synchronized Multi-player Operation](#) on page 91.

**NOTE:** When you have loaded a playlist with defined timecode parameters and you then click the **Play** control (▶) to start the show, it has the same affect as issuing the **TcStart** command.

The commands sent to each player are the same, whether the show control computer is connected to Remote port 1 or either LAN port.

**NOTE:** Click the [blue](#) links below to see the full command description in the “Programming Guide” section, including the complete command syntax, variables, responses, and some examples.

Command	Function
<b>File management commands</b>	
<a href="#">LoadClip</a>	Load a clip into a specified channel or both channels.
— OR —	
<a href="#">LoadPlaylist</a>	Load a playlist into a specified channel or both channels.
<b>NOTE:</b> The <a href="#">LoadClip</a> and the <a href="#">LoadPlaylist</a> commands both require a few seconds to complete because of some initialization that must occur when a new file is selected. If you are using the media player to repeatedly play a single file (such as in a theater) try using the <a href="#">Loop</a> command on page 66.	

Command	Function
<b>LTC commands</b>	
<b>Tcgenerate</b> <i>hh:mm:ss:ff</i>	Set the player into LTC generate (primary) mode and issues the LTC <i>hh:mm:ss:ff</i> as a jam sync.
<b>Tcreceive</b>	Set the player into LTC receive (secondary) mode and loop the incoming LTC to the LTC output.
<b>GetTimecodeMode</b>	Check the status of the media player LTC mode: 'Tcgenerate' (master) or 'Tcreceive' (secondary).
<b>SetTimecodeOpMode</b>	Define the LTC operating mode as either 'Chase' (stay in sync) or 'Trigger' (respond to specific signal).
<b>GetTimecodeOpMode</b>	Check the status of the media player when operating in TcReceive mode.
<b>TcPlayAt</b> <Chan> <i>hh:mm:ss:ff</i>	Sets an LTC timestamp at which the loaded clip or playlist automatically starts.
<b>Tcstopat</b> <Chan> <i>hh:mm:ss:ff</i>	Sets an LTC timestamp at which the loaded clip or playlist automatically stops. The display goes black after <i>hh:mm:ss:ff</i> .
<b>TcStart</b>	Starts the LTC running (assumes the player is in LTC generate mode)
<b>Genlock commands</b>	
<b>SetGenlockMode</b> <parameter>	Set the media player genlock mode: master, ESGEN, MSGEN, NTSC, PAL, or tri-level (HDTV).
<b>GetGenlockMode</b>	Check the status of the media player genlock mode.

**TIP:** When you are in a multiple player, primary/secondary configuration, you should stop all secondary players before loading new content on the primary player **if** that content has a different frame rate than the currently-loaded content.

1. Stop all players.
2. Load new content on the primary player.
3. Load new content on the secondary players.
4. Send the `tcreceive` and `tcplayat` commands.
5. Use the `tcstart` command to begin playback of the new content.

Changing content on the primary player without stopping the secondary players may result in a flashing or green screen output to the displays until the new content is loaded on the secondary players.

## Configuring LTC for Synchronized Multi-player Operation

### Control Example – Single file using separate control

This example is the simplest type of synchronized show, requiring two players. Each player loads a single clip and plays it through to the end. This is an example of a technique that might be used in a 3D theater.

The following table assumes that you want to play the file `<folder>/<name>` in channel 1 of two JMP 9600 units, beginning at the 1-hour LTC mark, with a 5 second LTC lead in (pre-roll). To play properly, the show-control system needs to trigger the following events in the sequence shown.

Command to Prime Player	Command to Second Player	Function
LoadClip 1 <code>&lt;folder&gt;/&lt;name&gt;</code>	LoadClip 1 <code>&lt;folder&gt;/&lt;name&gt;</code>	Load a clip (cue it) into channel 1 of both media players . For a playlist, use the <b>LoadPlaylist</b> command.
<p><b>NOTE:</b> The media players respond to the LoadClip commands with <b>OK</b> after the file loading process is completed. You may need to build a delay into the sequence required between the LoadClip and Tcgenerate commands. The actual delay required is dependent on the size of the clip file and must be determined by experimentation, but start with 1 second.</p>		
Tcgenerate <code>00:59:55:00</code>		Program the primary player as the LTC generator.
	Tcreceive	Program the secondary player as the LTC receiver.
TcPlayAt <code>&lt;1&gt; 01:00:00:00</code>	TcPlayAt <code>&lt;1&gt; 01:00:00:00</code>	Set both media players to begin playing at a specific LTC timestamp.
Tcstart		Set the primary player to begin LTC generation.

Both media players begin showing video at the LTC timestamp specified in the **Tcplayat** command.

**NOTE:** Adjustments to the **Tcplayat** timestamp on the secondary player can correct for encoding errors.

When the media player is set as a timecode generator **and** a clip or playlist is loaded, the player begins to generate LTC as a response to either of two commands:

- **Play** — This command can be from the front panel **Play/Pause** (▶/⏸) button, the **Play** (▶) control on the Player Control HTML page, or the **Play** MSVPP command.
- **TcStart** — This command can only be sent via MSVPP (although when you have loaded a playlist with defined timecode parameters and you then click the Play control (▶) to start the show, it has the same affect as issuing the **TcStart** command).

LTC locks any secondary devices to the video output of the primary player. Each playlist can have its own unique LTC and has the ability to generate a pre-roll period, a post-roll period (also called “run-on”), or both.

The simplest way to configure the player is using the HTML **Edit Playlist Properties** dialog box as shown in the examples on the next several pages: “Configuring a player as an LTC generator” and **Configuring Genlock for Synchronized Multi-player Operation** on page 91.

#### TIPS:

- See **Editing the Properties of a Playlist** on page 47 in the “HTML Operation” section to open the dialog box.
- The Edit Playlist Properties Dialog box is available for playlists only. If your presentation is a single clip, create a playlist consisting of just that clip.

## Configuring a player as an LTC generator

You may need to make the following settings:

- **Start Time** — Select **Generate** (above **Start Time**), enter a **Start Time**, and click **Save**. This is the LTC that is generated (the jam sync) when the playlist is loaded **and** after a play command is received. If the **Play At** option (see below) is not enabled, this is also the point when video output begins

This sequence is the equivalent of issuing the `TcGenerate` MSVPP command where the Start Time variable is the `hh:mm:ss:ff` portion of the MSVPP command.

- **Play At** — Select the **Play At** checkbox, enter a time for playback to begin, and click **Save**. The difference between the **Start Time** and **Play At** time is the pre-roll period, an interval in which LTC is generated before the video starts. As an example, pre-roll might allow audience members to take their seats after an announcement that the show has begun.

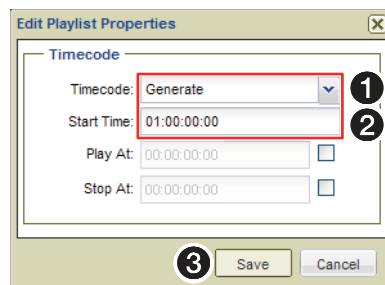
This action is the equivalent of issuing the `PlayAt` MSVPP command.

- **Stop At** — Select the **Stop At** checkbox, enter a time for LTC playback to stop, and click **Save**. This option sets a stop point for the LTC, which can be before or after the end of the video output.
  - If no **Stop At** is specified, LTC stops when the video ends.
  - If **Stop At** is **before** the end of the video roll, the video playback also stops and the display goes black.
  - If **Stop At** is **after** the end of the video roll, the difference between the end of the clip or playlist and **Stop At** (when it is after video ends) is the post-roll period, an interval in which LTC continues to be generated after the video ends and the display goes black. As an example, post-roll might allow the house lights to gradually brighten.

This action is the equivalent of issuing the `StopAt` MSVPP command.

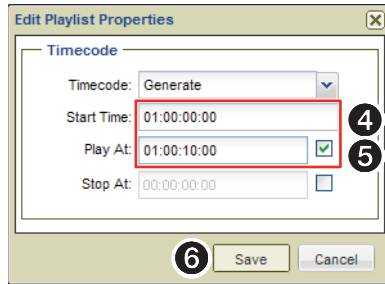
The examples on the following pages show some typical uses of the LTC generation options.

Figure 67 shows using the **Edit Playlist Properties** dialog box to set the primary player to generate an LTC (1) that starts counting up from 01:00:00:00 (exactly 1 hour) (2) once the play or **TCStart** command is received. You must save this setting (3).



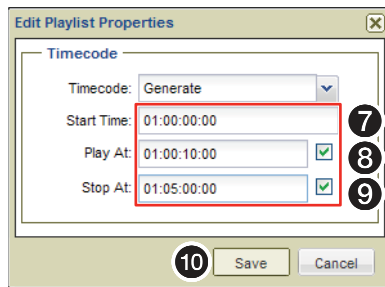
**Figure 67. Generate an LTC**

Figure 68 shows using the **Edit Playlist Properties** dialog box to generate an LTC that starts at 01:00:00:00 (4) once the play command is received, but to delay the start of the video play until 01:00:10:00 (by 10 seconds) (5). You must save this setting (6). This creates a 10 second pre-roll period.



**Figure 68. Delay Video Start**

Figure 69 shows using the **Edit Playlist Properties** dialog box to generate an LTC starting at 01:00:00:00 (7) once the play command is received, start the video 10 seconds later (10-second delay) (8), and run the LTC on until 01:05:00:00 (9). You must save this setting (10). If the video presentation is 4 minutes and 30 seconds, this results in a 30-second post-roll period.

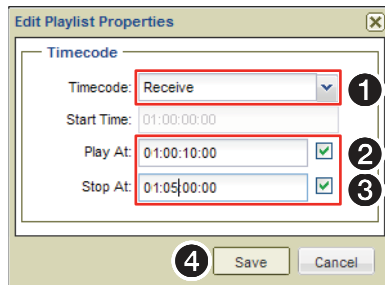


**Figure 69. Set an LTC Stop**

**Configuring a player as an LTC receiver (secondary)**

A secondary player can be programmed to begin playing the loaded clip or playlist when it receives a particular LTC timestamp. A different LTC timestamp can be programmed for each clip in a playlist.

Figure 70 shows using the **Edit Playlist Properties** dialog box to receive an LTC (1), start the video 10 seconds after the receipt (a 10-second delay) (2), and run the LTC on until 01:05:00:00 (3). You must save this setting (4). If the video presentation is 4 minutes and 30 seconds, this results in a 30-second post-roll period.



**Figure 70. Set an LTC Receiver, Pre-Roll, and Post-Roll**

The file will run until a **StopAt** command halts the player and the display goes black after 5 minutes (01:05:00:00).

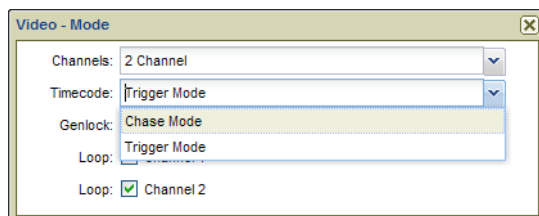
Besides setting the player as secondary and (if applicable) setting **Play At** and **Start At** times, you need to consider, when configuring a secondary player, whether to operate that player in chase or trigger mode:

- **Chase Mode** — The media player tracks (stays in sync with) the in-coming LTC.
- **Trigger Mode** — The media player begins playback at a specific LTC timestamp value, but continues playing without any further reference to the incoming LTC.

Chase or trigger can be selected using any of the following:

- The front panel control (see **Video submenu** on page 32 in the “Operation” section)
- The HTML setup dialog boxes (see **Video mode setup dialog box** on page 53 in the “HTML Operation” section and figure 71, below)

The `SetTimecodeOpMode` MSVPP command (see **Applicable MSVPP commands** on page 86).



**Figure 71. Select an LTC Mode**

## Configuring Genlock for Synchronized Multi-player Operation

Genlock ensures that multiple media players operate with synchronous timing on each of their outputs. Genlock synchronizes and locks the video outputs. When genlock is combined with the LTC reference, the first frame of video is decoded across all the players that make up the ‘genlocked’ system at the same time. See **Results of LTC and genlock timing references** on page 85.

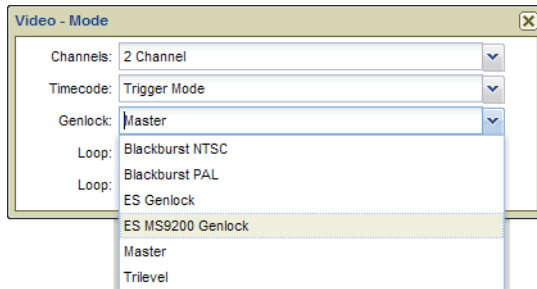
The selected genlock provides a high level of timing synchronization among systems. Proprietary genlock works with Extron and Electrosonic devices **only** and allows non-standard frame rate synchronization.

The media player can operate as a proprietary genlock generator or a receiver of any genlock standard, as selected:

- **Blackburst NTSC** — The media player receives traditional NTSC genlock as a secondary unit on the rear panel Genlock connector.
- **Blackburst PAL** — The media player receives traditional PAL genlock as a secondary unit on the rear panel Genlock connector.
- **ES Genlock** — The media player receives ESGEN genlock signals as a secondary unit on the rear panel Lock In connector.
- **ES MS9200 Genlock** — The media player receives MSGEN genlock signals as a secondary unit on the rear panel Lock in connector.
- **Master** — The media player transmits both ESGEN and MSGEN genlock signals simultaneously on the rear panel Lock Out connector.
- **Trilevel** — The media player receives traditional HDTV trilevel genlock as a secondary unit on the rear panel Genlock connector.

The proprietary genlock settings can be selected using any of the following:

- The front panel control (see [Video submenu](#) on page 32 in the “Operation” section)
- The HTML setup dialog boxes (see [Video mode setup dialog box](#) on page 53 in the “HTML Operation” section and figure 72)
- The `SetGenLockMode` MSVPP command (see [Applicable MSVPP commands](#) on page 86).



**Figure 72. Select a Genlock Mode**

## High Frame Rate

The high frame rate mode supports resolutions of 1920x1080 and 2048x1080 at 48, 50, and 60Hz by using the dual HD-SDI connection mode. The media player must be set for 2-channel-locked mode and the content must be progressive frame only with interlaced transport format, compatible with SMPTE 372-2009. The high frame rate content requires a pair of DCPs; one containing the odd lines for each frame and the other containing the even lines. Each DCP must be loaded on the appropriate channel of the player and both channels must be loaded before the player allows playback. Loading a different file format or frame rate clears the clip loaded on the other channel.

The Extron JPEG 2000 Encoder software (see [Encoding Guidelines](#) on page 96) automatically generates the file format required for high frame rate operation when you select the corresponding resolution and frame rate.

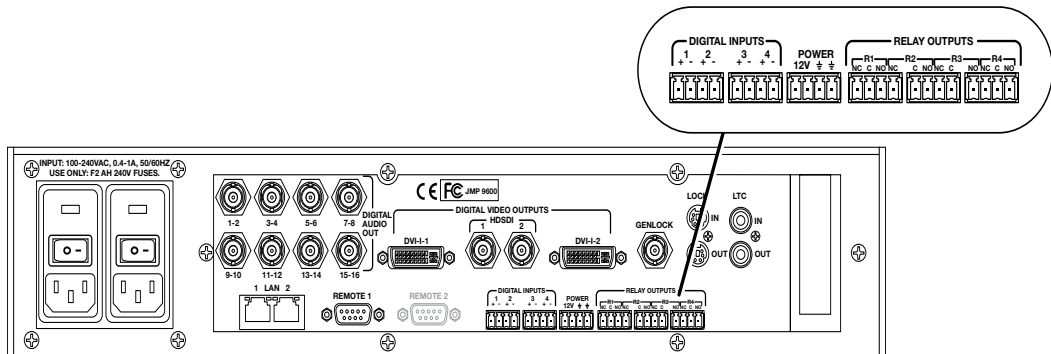
The high frame rate mode requires that the connected display support the SMPTE 372M dual-link HD-SDI interlaced transport mode. Several cinema projectors support this mode with they are fitted with the appropriate dual-link HD-SDI input board. Please confirm compatibility with the specialized equipment manufacturer. As an alternative, an AJA Video Systems® Hi5 3G 3G/Dual-link/HD/SD-SDI To HDMI 1.3a Video and Audio Converter can convert a single HDMI connection.

**NOTE:** The Extron USP 507 supports only single-link HDS DI and the output frame rates are limited to 50 Hz and 60 Hz (48 Hz is not supported).

## Using Digital Inputs and Relays

**⚠ WARNING:** **Electric shock hazard** — 12 VDC is always present on this port when the media player is powered on. Ensure that no conductive material comes into contact with these terminals.

**AVERTISSEMENT :** **Risque de choc électrique** — Ce port fournit constamment une tension de 12 Vcc lorsque le lecteur média est en marche. Veillez à ce qu'aucun matériau conducteur n'entre en contact avec ces terminaux.



**Figure 73. Rear View of the Inputs and Relays Ports**

The inputs and relays ports offers digital inputs and relay outputs that can be controlled via third party show-control software. The inputs and relays ports feature:

- Four optically-Isolated digital inputs that can be configured to provide triggers to either an external show-control system, which can issue commands to the JMP 9600
- Four digital outputs, each driving low current changeover relays that can switch up to 1 A at 24 VDC.
- 12 VDC to power the I/O switch function.



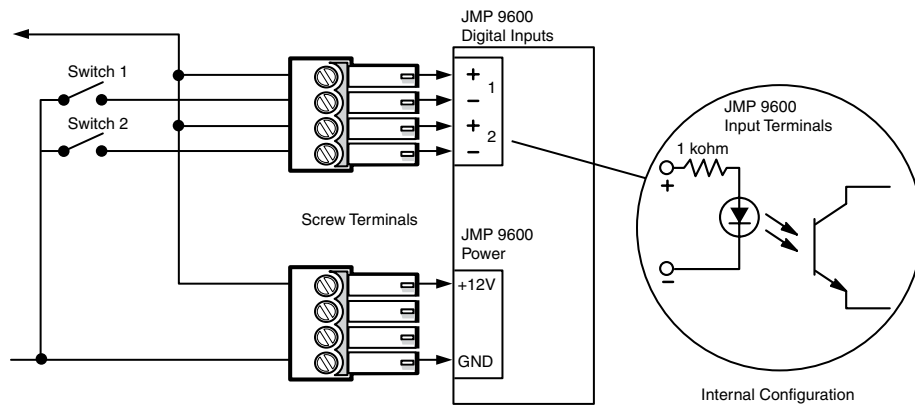
## Optically-isolated Digital Inputs

The digital input connections are implemented as four + and – terminals on 3.5 mm captive screw terminal blocks. Because each input is optically-isolated, both connections must be used to ensure the correct operation of the input circuit.

**NOTE:** By factory default, status notification for Digital Inputs 1 through 4 is disabled. To be made operational, they must be enabled using the `Set input trigger` on MSVPP command (see [Applicable Digital I/O MSVPP commands](#) on the next page).

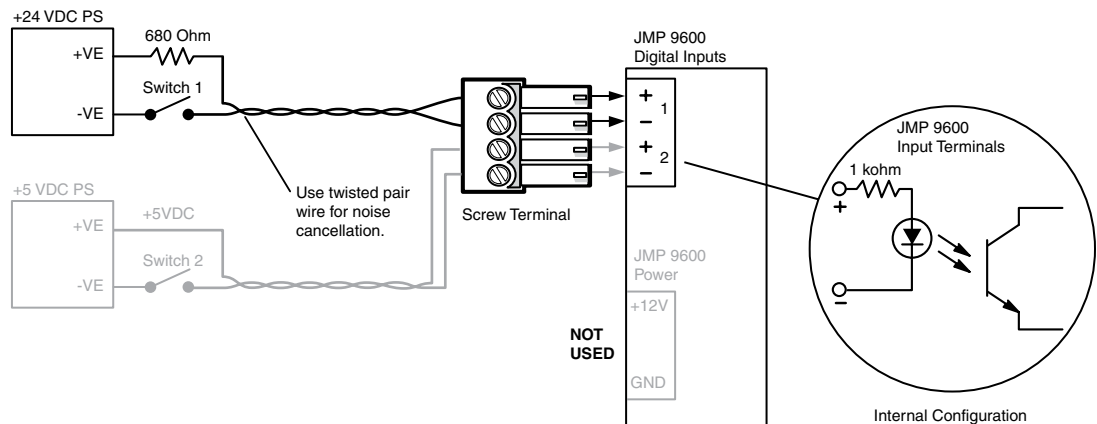
The optically-isolated input circuits provide for various connection scenarios; two common methods follow:

**Option 1** — Figure 74 shows a typical Digital Input application, monitoring external switch positions. This application uses the Power port on the media player and is an application where the current required is within the 1.8 A that the Power port makes available for external use.



**Figure 74. Digital Input Connection Using the Power Port**

**Option 2** — Figure 74 shows a similar external switch monitoring application, except that it uses an external power supply. The external power supply is the preferred method in noisy environments or when wiring is run over a long distance. The exact external power supply voltage rating is not critical so long as the current through the 1-kohm resistor internal to the media player is limited between 5 mA and 20 mA. Note the resistor in the input 1 circuit in figure 75, which attenuates the current to within these limits.



**Figure 75. Digital Input Connection Using External Power Supplies**

## Relay Contacts

The relay outputs consist of four sets of NO and NC relay contacts. Connect an external device that you want to be able to switch on or off to the player via three poles (normally closed [NC], common [C], and normally open [NO]) of the 3.5 mm 4-pole captive screw connectors.

**NOTE:** Relays R1 and R4 each span three poles on a single 4-pole captive screw connector. Relays **R2** and **R3** each span two captive screw connectors.



These relay outputs act as switches to control external devices. Their activity is controlled via MSVPP commands only (see “Applicable Digital I/O MSVPP commands”, below).

## Applicable Digital I/O MSVPP Commands

The table below lists the MSVPP commands that you may need to control the inputs and relays ports. These control functions are available **only** via MSVPP commands. The commands sent to each player are the same, whether the show control computer is connected to Remote port 1 or either LAN port.

**NOTE:** Click the [blue](#) links below to see the full command description in the “Programming Guide” section, including the complete command syntax, variables, responses, and some examples.

Command	Function
<b>Digital inputs commands</b>	
<a href="#">GetInput &lt;port#&gt;</a>	View the status of one or more inputs. Poll multiple inputs by separating them with spaces in the command. If no input is specified, the media player returns the level on all inputs.
<a href="#">SetInputTrigger On</a>	Set the Digital Inputs ports to automatically report a status change such as a switch closure.
<b>NOTE:</b> If the input trigger is on, the media player sends an input state message to the connected computer whenever the state of an input changes. The message is similar to the response to the GetInput message and contains the current state of all inputs. It is up to the show control system to determine which input or inputs changed and act accordingly.	
<a href="#">SetInputTrigger Off</a>	Set the Digital Inputs ports to stop reporting status changes.
<b>Digital outputs commands</b>	
<a href="#">Setoutput &lt;port&gt; &lt;+ or -&gt;</a>	Set multiple output levels by separating them with spaces ( + = on, - =off).
<a href="#">GetOutput &lt;port&gt;</a>	View the status of one or more outputs. Poll multiple outputs by separating them with spaces in the command. If no output is specified, the media player returns the level on all outputs.

## Encoding Guidelines

This section describes the process of encoding and packaging a video and audio presentation for playback on the JMP 9600 Media Player.

The Extron JPEG 2000 Encoder software simplifies and optimizes the process and workflow for creating content. An installer for the software is available on request. Two versions of the software are available:

- **J2KENC JPEG 2000 Encoding Software** — A “light” version that is free of charge to all media player purchasers. This version is the default when the JPEG 2000 Encoder software is first installed on your encoding computer. The application has basic functionality powerful enough for situations that require encoding short clips with a single audio (stereo) file.
- **J2KENC-PRO JPEG 2000 Professional Encoding Software** — A “full” version that requires a for-cost license and activation key from Extron. Once licensed, the Pro version extends the feature set of the basic version by adding multichannel audio and enhanced processing capabilities (enabling multiprocessor support and farming).

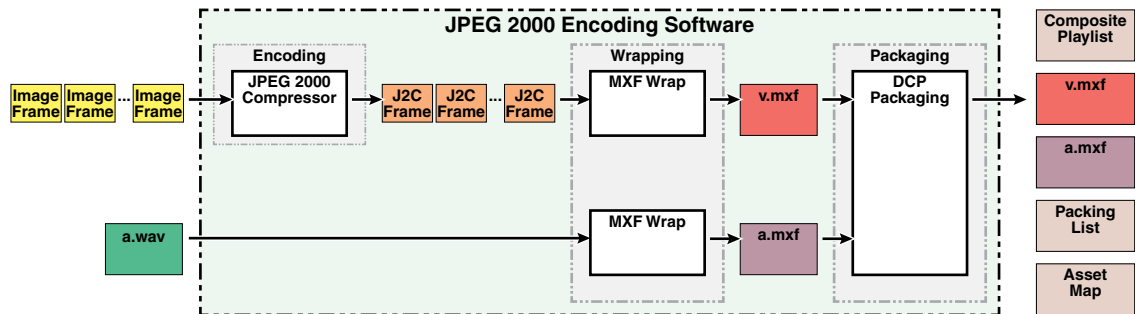
**NOTE:** The professional version is loaded with the basic version, but the full capabilities are disabled until the professional version is licensed.

When it is first installed, the software is configured as the “light” version. When you purchase a license for the full version, a process to collect information from your machine (you will be asked to send a “seed” generated within the software that contains unique details), Extron generates a corresponding key that unlocks the features.

The encoding and packaging process follows many of the concepts and specifications developed by the Digital Cinema Initiative (DCI) and creates Digital Cinema Packages (DCPs). A DCP is a folder that contains all of the files necessary for the JMP 9600 to play a presentation. This folder can include reel files (video images and audio data), the composition playlist (CPL), and the associated packing list and asset map. For more detailed information, see the references and specifications listed at the end of this section and call the Extron Sales and Technical Support Hotline (see the contact numbers listed on the Extron [webpage](#) for the office nearest you).

## Encoding and Packaging Overview

Creating content for the JMP 9600 is done in three stages: encoding, wrapping and packaging. The Extron JPEG 200 Encoder Software performs these tasks automatically and internally (see figure 76). This process is provided for reference only.



**Figure 76. JPEG 2000 Encoding Software**

- **Encoding** — Each frame of source video is compressed by passing the raw pixel data through a JPEG 2000 compressor. The compressor creates a stream of JPEG-2000-coded frames. The parameters applied to the encoder affect the compression level and quality of the image.

The source audio is encoded using pulse code modulation (PCM).

- **Wrapping** — The individual compressed video frames are combined into a single track file using the Material Exchange Format (MXF). The audio is converted into a separate MXF track file.

**NOTE:** The compressed audio and video data are maintained in separate MXF files.

- **Packaging** — Additional control files, describing the format of and relationship between the audio and video files are generated. The resulting files are collectively known as a Digital Cinema Package (DCP) as described in the DCI specification.

### Video track files

A video track file is the smallest unit of video in the system. It is an MXF container that has all the compressed video data and associated meta-information necessary to decode and render a piece of video (see, for example, v.mxf in figure 76).

The JMP 9600 supports frame-wrapped video track files that conform to SMPTE 377M-2004 and SMPTE 422M 2006.

### Audio track files

An audio track file is the smallest unit of audio in the system. It is an MXF container that has all the PCM-encoded, uncompressed audio data and associated meta-information necessary to recreate a piece of audio (see, for example, a.mxf in figure 76).

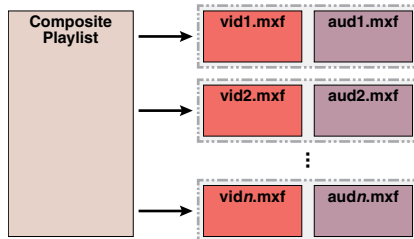
The JMP 9600 supports frame-wrapped audio track files that conform to SMPTE 377M-2004 and SMPTE 382M-2007.

### Reels

In the movie industry, it is a common practice to split a feature onto several film reels for distribution. This concept is supported digitally by splitting a feature into several separate files. In the digital realm, a reel is a track file (see above) that contains **either** video content **or** audio content.

## Composition playlist

A composition playlist (CPL) is a text file that contains all of the information necessary to reassemble a presentation from its individually encoded components and how the files for a specific presentation should be played back. The CPL file points to the reels (see figure 77), identifying locations (folders) and filenames, and specifies how the audio is synchronized with the picture. The CPL can specify one video reel and one audio reel or multiple reels of both types, depending upon the wrapping process.



**Figure 77. Composition Playlist**

A CPL represents a complete presentation, which could be a feature, trailer, or advertisement.

## Packing list and asset map

The packing list and asset map provide size and checksum information for audio and video MXF files in the DCP so that the player can ensure there was no corruption during file transfer. These files are described in SMPTE 429-8-2006 and SMPTE 429-9-2007, respectively.

## Supported Video Formats

The two JMP 9600 models support the resolutions and video frame rates listed in the following table.

Resolution	Frames per second (Fps)								
	23.98	24	25	29.97	30	48	50	59.94	60
<b>JMP 9600 HD and JMP 9600 2K</b>									
1280 x 720						•	•	•	•*
1920 x 1080i			•	•					
<b>JMP 9600 2K only</b>									
1920 x 1080i					•				
1920 x 1080p	•	•	•	•	•	•	•	•	•
2048 x 1080p	•	•	•	•	•	•	•	•	•

\* 4:2:2 only on HD model

The JMP 9600 supports the colorspace and chroma subsampling formats listed in the following table.

Colorspace	Chroma subsampling	Bit depth	4:4:4	4:2:2
RGB	4:4:4	10	Dual link	Single link
XYZ	4:4:4	12	Dual link	Dual link
YPrPb	4:2:2, 4:4:4			

- Single channel mode supports all single link and dual link HD-SDI options.
- Dual channel mode supports single link HD-SDI (10 bit) and DVI (8 bit) only.
- High frame rate modes (1080p at 48 fps and above) require dual channel locked mode, dual link HD-SDI 4:2:2, 10 bit only.

## JPEG-2000 Restrictions

The stream of JPEG-2000-coded frames must conform to ISO 15444-1:2004/PDAM 1 and are further constrained as follows:

- All frames must be untiled; the entire image is encoded as a single tile.
- The image and tile origins must both be at <0,0>.
- Each compressed frame must be less than 1,300,000 bytes.
- Each tile part of a compressed frame must be less than 500,000 bytes.
- Compressed frames of 4:4:4 content have 3 tile parts.  
Compressed frames of 4:2:2 content have 2 tile parts.
- The progression order must be Component Position Resolution Layer (CPRL).
- All frames must contain a Tile-part Length, Main header (TLM) marker.
- The following markers are forbidden:
  - **POC** — Progress Order Change
  - **PPM** — Packed Packet headers, Main header
  - **PPT** — Packed Packet headers, Tile-part header
  - **RGN** — Region of interest
- The following markers may appear only in the main header.
  - **COC** — Coding style Component
  - **COD** — Coding style Default
  - **QCC** — Quantization Component
  - **QCD** — Quantization Default
- Codeblocks must be 32 x 32 for 4:4:4, 2K and 1080p resolutions.  
Codeblocks must be 128 x 32 for all other formats and resolutions.
- The codeblock coding style is SPcod, SPcoc = 0b00000000.
- The precinct sizes at all resolutions must be 256 x 256, except the lowest frequency subband, which must have a precinct size of 128 x 128
- There must be no more than 5 wavelet transform levels.

# Mounting and Maintenance

This section details the following JMP 9600 Media Player procedures:

- [Mounting the Media Player](#)
- [Cleaning the Air Filters](#)
- [Changing the Fuses](#)
- [Troubleshooting a High Temperature](#)
- [Battery Precautions](#)

## Mounting the Media Player

The JMP 9600 Media Player is housed in a rack-mountable, 2U high metal enclosure. It can be set on a tabletop or installed in a standard 19-inch wide rack.

### Ventilation Guidelines

**NOTE:** When installing multiple JMP 9600 units in an equipment rack or other enclosed area, it is highly recommended that the space be equipped with an active cool air intake and warm air exhaust system.

To allow sufficient ventilation and cooling, consider the following:

- Maintain a clear space at all times at the sides (2 inches [51 mm]) and rear (6 inches [152 mm]) of the player. This clear space must also allow vertical air movement. You can run cables in this space but dress the cables clear of any ventilation holes.
- Keep the front of the player clear of obstructions at all times.
- Do not impede the air flow into and out of the unit by covering the ventilation holes.

These requirements are usually met by any typical 19-inch rack mount environment.

### Tabletop Use

Affix the included rubber feet to the bottom of the unit and place it in any convenient location.






3. Place the mounting brackets against the left and right sides of the media player, directly behind and flush against the front panel (3).
4. Secure the brackets in place with the screws removed in step 2.
5. Insert the media player into the rack, aligning the holes in the mounting bracket with those in the rack (4).
6. Secure the media player to the rack using standard 10-32 (or 6 mm in Europe) rack mounting screws (5).

## Cleaning the Air Filters

The JMP 9600 is equipped with two foam air filters that should be checked every four to six months and cleaned or replaced as required. You may need to perform this check more frequently in environments containing higher levels of particulates (such as dust).

**ATTENTION:** Do not subject the player to excessively dusty environments.

Clean the air filters as follows:

 **WARNING:** **Electric shock hazard** — Physically disconnect both power cables from the player before opening the case for servicing.

**AVERTISSEMENT :** **Risque de choc électrique** — Déconnectez les deux câbles d'alimentation du lecteur avant d'ouvrir le boîtier en cas de maintenance.

1. Unplug both power cords.
2. Remove the eight front panel screws to access the foam filters.
3. Gently lift each filter from the receptacle.
4. Use compressed air or a vacuum cleaner to remove any accumulated dust.

### NOTES:

- If dust remains, you can pass the filters under warm running water or gently immerse them in warm soapy water. Ensure the filters are rinsed and completely dry before reinstalling.
- If the air filters are damaged, contact Extron for replacements.

5. Re-insert the filters into the receptacles on the unit.
6. Replace the front panel and secure it with the screws that were removed in step 2.
7. Restore power.

## Changing the Fuses

The JMP 9600 is equipped with field replaceable fuses to protect against overcurrent damage. If one of the two power circuits fails, replace the fuses as follows:

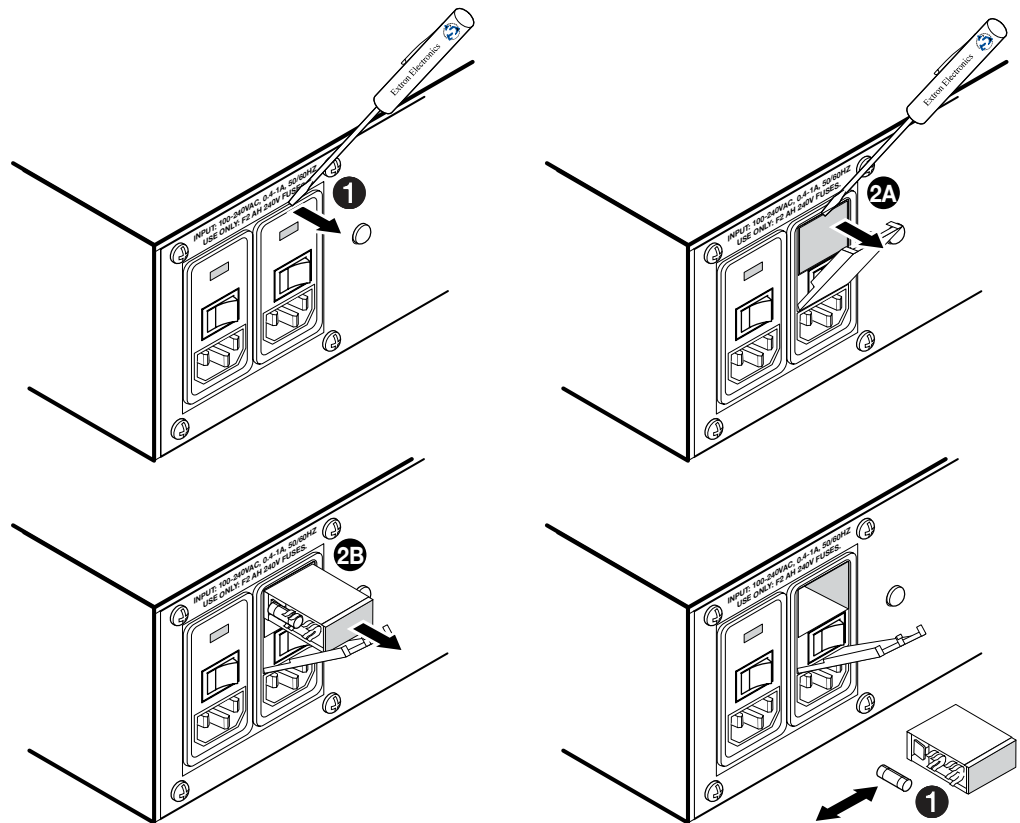
**⚠ WARNING:** **Electric shock hazard** — Physically disconnect both power cables from the player before opening the case for servicing.

**AVERTISSEMENT :** **Risque de choc électrique** — Déconnectez les deux câbles d'alimentation du lecteur avant d'ouvrir le boîtier en cas de maintenance.

**ATTENTION:** This unit employs double pole/neutral fusing.

1. Unplug both power cords.
2. With a Tweezer or other small screwdriver, gently pry the cover away from the AC Power Input switch for the power circuit that has failed (see **1** on figure 79).

**NOTE:** The cover does not separate from the power block but hangs in place.



**Figure 79. Replacing Fuses**

3. Gently pry the fuse module from the power block (**2A**) and pull it from the enclosure (**2B**).
4. Remove and replace both fuses on the fuse module.

**ATTENTION:** Replace the fuses with F2 AH 240V fuses only.

5. Slide the fuse module into the power block and snap it into position (**3**).
6. Snap the cover back into place on the power block.
7. Restore power.

## Troubleshooting a High Temperature

The internal temperature of the media player can be viewed on the front panel (see the front panel **System Status screen** on page 35 in the “Operation” section. Temperatures above 85 °C (185 °F) indicate an equipment cooling problem. Power off the media player and troubleshoot a high temperature as follows:

1. Verify that the room ambient temperature is lower than the specified 104 °F (+40 °C) maximum.
2. Check the front panel air filters and clean or replace if necessary (see **Cleaning the Air filters** on page 102).
3. Check that all cooling fans (one on the right and two on the left) are operating normally.

If the fans are not operating, or if you cannot find the cause of the overheating, contact the Extron S3 Sales & Technical Support Hotline (see the contact numbers listed on the Extron **webpage** for the office nearest you).

## Battery Precautions

The JMP 9600 is provided with a permanently installed (factory-soldered in place) lithium battery. The battery maintains the real time clock in the event of power failure or extended storage periods and does not affect the normal operation of the player. If the battery becomes ineffective, return the player to Extron for repair.



**WARNING:** **Electric shock hazard** — There is a danger of explosion if battery is incorrectly replaced.

**Do not attempt** to remove or replace the internal battery.

**AVERTISSEMENT :** **Risque de choc électrique** — Le remplacement incorrect de la batterie comporte un risque d’explosion.

**N’essayez pas** de retirer ou de remplacer la batterie interne.

# Ethernet Connection

This section provides a high level discussion of the Ethernet connections on the player and a primer on the subject of subnetting. Topics that are covered, include:

- [Ethernet Link](#)
- [Subnetting – A Primer](#)

## Ethernet Link

The rear panel Ethernet connector on the switcher can be connected to an Ethernet LAN or WAN (see [item G](#) and [LAN Ports](#) on page 9 in the “Installation” section).

### Default IP Address

To access the media player via the LAN port, you need the IP address of the player. If the local system administrators have not changed the value, the factory-specified default IP addresses are as follows:

**LAN 1:** 192.168.254.254      **LAN 2:** 192.168.254.253

Ping can also be used to test the Ethernet link to the media player.

## Pinging to Determine the IP Address

The ping utility is available at the Command prompt. Ping tests the Ethernet interface between the computer and the media player. Ping can also be used to determine the actual numeric IP address from an alias and to determine the web address.

Ping the player as follows:

1. On the Windows task bar, click on **Start > Run**.
2. At the **Open** prompt, type **command**.
3. Click the **OK** button.
4. At the DOS prompt, type `ping <IP address>` and then press **<Enter>**. The computer returns a display similar to the one shown in figure 80.
5. The line **Pinging ...** reports the actual numeric IP address, regardless of whether you entered the actual numeric IP address or an alias name.

```
C:\>ping 192.168.254.254

Pinging 192.168.254.254 with 32 bytes of data:

Reply from 192.168.254.254: bytes=32 time<10ms TTL=128
Reply from 192.168.254.254: bytes=32 time<10ms TTL=128
Reply from 192.168.254.254: bytes=32 time<10ms TTL=128
Reply from 192.168.254.254: bytes=32 time<10ms TTL=128

Ping statistics for 192.168.254.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

**Figure 80. Typical Ping Response**

## Pinging to Determine the web IP Address

The ping utility has a modifier, `-a`, that directs the command to return the web address rather than the numeric IP address.

At the DOS prompt, type `ping -a <IP address>` and then press **<Enter>**. The computer's return display is similar to the ping response shown in figure 80, except that when you specify the `-a` modifier, the line **Pinging mail...** reports the web IP address rather than the numeric IP address, regardless of whether you entered the actual numeric IP address or an alias name.

## Configuring the Media Player for Network use via the ARP Command

The ARP (address resolution protocol) command tells your computer to associate the media MAC (media access control) address of the player with the assigned IP address. You must then use the ping utility to access the controller, at which point the IP address of the controller is reconfigured.

Use ARP to configure the IP address as follows:

1. Obtain a valid IP address, such as 10.13.197.7, for the media player from your network administrator.
2. Obtain the MAC address (UID #) of the media player from the label on its rear panel. The MAC address should have this format: 00-E0-AA-xx-xx-xx.
3. At the PC, access the MS-DOS command prompt, then enter the `arp -s` command. Type in the desired new IP address for the unit (obtained in step 1) and the MAC address of the unit (from the rear panel of the unit). For example `arp -s 192.168.254.254 00-05-A6-03-69-B0` and then press **<Enter>**.

The computer returns the command prompt (C: \).

After you issue the `arp -s` command, the controller changes to the new address and starts responding to the ping requests to the new address, as described in the next step.

**NOTE:** You **must** ping the media player for the IP address change to take place. The response should show the new IP address, as shown in figure 81.

4. Execute a ping command by entering ping followed by a space and the new IP address at the command prompt. For example:

```
ping 192.168.254.254
```

```
C:\>ping 192.168.254.254

Pinging 192.168.254.254 with 32 bytes of data:

Reply from 192.168.254.254: bytes=32 time<10ms TTL=128
Reply from 192.168.254.254: bytes=32 time<10ms TTL=128
Reply from 192.168.254.254: bytes=32 time<10ms TTL=128
Reply from 192.168.254.254: bytes=32 time<10ms TTL=128

Ping statistics for 192.168.254.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

**Figure 81. Ping with New Address**

**NOTE:** You can reconnect using either Telnet or a web browser to verify that the update was successful.

5. After verifying that the IP address change was successful, enter and issue the `arp -d` command at the Command prompt. For example:

```
arp -d 10.13.197.7 removes 10.13.197.7 from the ARP table
```

**or**

```
arp -d* removes all static IP addresses from the ARP table.
```

## Connecting as a Telnet Client

**NOTE:** The Telnet Client utility is not installed by default in Microsoft Windows 7 or Windows Vista. Click **Start > Search** and type `pkmgr /iu:"TelnetClient"` <Enter> on the Start Search line.

The Telnet utility is available from the **Command** prompt. Telnet allows you to input MSVPP commands to the media player from the PC via the Ethernet link and the LAN.

Access the DOS prompt and start Telnet as follows:

1. On the Windows task bar, click on **Start > Run**.
2. At the **Open** prompt, type command.
3. Click the **OK** button.
4. At the **Command** prompt, type `Telnet` and then press <Enter>. The computer returns a display similar to the one shown in figure 82.

```
Microsoft (R) windows 2000 (TM) Version 5.0 (Build 2195)
Welcome to Microsoft Telnet Client
Telnet Client Build 5.00.99203.1

Escape Character is 'CTRL+]'

Microsoft Telnet>
```

**Figure 82. Telnet Window**

## Telnet Tips

It is not the intention of this manual to detail all of the operations and functionality of Telnet; however, some basic level of understanding is necessary for operating the media player via Telnet.

### Open

Connect to the media player using the **Open** command. Once you are connected to the player, you can enter the MSVPP commands the same as you would if you were using the RS-232 link.

1. At the Telnet prompt, type `open <IP address>` and then press <Enter>.

**NOTE:** The factory configured password for all accounts on this device has been set to the device serial number. Passwords are case sensitive.

2. At the **password** prompt, type <password> and then press <Enter>.

**NOTE:** `4000` is for player control, `4001` is for serial port pass-through.

#### TIPS:

- The session can also be established directly from the **Command** prompt by typing `Telnet <IP address> 4000` (or `4001`) and then pressing <Enter>
- The Telnet Client can also be added or removed by clicking **Control Panel > Programs and Features > Turn Windows Features On and Off** and then check or uncheck the the **Telnet Client** box.





## Subnet Masks and Octets

The subnet mask (figure 84) is used to determine whether the local and remote devices are on the same subnet or different subnets. The subnet mask consists of four numeric octets separated by dots. Each octet can be numbered from 000 through 255. Leading zeroes, up to three digits total per octet, are optional. Each octet typically contains either 255 or 0. The octets determine whether or not the same octets of two IP addresses will be compared when determining if two devices are on the same subnet.

255 indicates that this octet will be compared between two IP addresses. 0 indicates that this octet will **not** be compared between two IP addresses.

Typical Subnet Mask: 255.255.0.0  
Octets

**Figure 84. Typical Subnet Mask**

## Determining Whether Devices are on the Same Subnet

To determine the subnet, the IP address of the local device is compared to the IP address of the remote device (see figure 85). The octets of each address are compared or not compared, depending on the value in the related subnet mask octet.

- If a subnet mask octet contains the value 255, the related octets of the IP addresses of the local device and the remote device are unmasked.

**Unmasked octets are compared** (indicated by ? in figure 85).

- If the subnet mask octet contains the value 0, the related octets of the IP addresses of the local device and remote device are masked.

**Masked octets are not compared** (indicated by X in figure 85).

If the unmasked octets of the two IP addresses **match** (indicated by = in figure 85, example 1), the two addresses **are on the same subnet**.

If the two unmasked fields **do not match** (indicated by ≠ in figure 85, example 2 and example 3), the addresses **are not on the same subnet**.

	Example 1	Example 2	Example 3
Local IP Address:	192.168.254.254	192.168.254.254	192.168.254.254
Subnet Mask:	255.255.0.0 (?.?.X.X)	255.255.0.0 (?.?.X.X)	255.255.0.0 (?.?.X.X)
Remote IP Address:	192.168.2.25	190.190.2.25	192.190.2.25
Match?:	=.=.X.X — Match (Same subnet)	≠.≠.X.X — No match (Different subnet)	≠.≠.X.X — No match (Different subnet)

**Figure 85. Comparing the IP Addresses of the Local and Remote Devices**

## Extron Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

**USA, Canada, South America,  
and Central America:**

Extron Electronics  
1230 South Lewis Street  
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**Asia:**

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**Middle East:**

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**Africa:**

Extron South Africa  
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160 Jan Smuts Avenue  
Rosebank 2196, South Africa

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or if modifications were made to the product that were not authorized by Extron.

**NOTE:** If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

**USA:** 714.491.1500 or 800.633.9876

**Asia:** 65.6383.4400

**Europe:** 31.33.453.4040 or 800.3987.6673

**Japan:** 81.3.3511.7655

**Africa:** 27.11.447.6162

**Middle East:** 971.4.299.1800

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.