User Manual

Tektronix

Profile Family

System Software
Version 2.5

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Contents

Contents

Contents

Contents

Chapter 10   **Using the Resource Manager**

Figures

Contents

Contents

Contents

Tables

Preface

About this Manual

The *Profile® Family User Manual* supports Profile system software 2.5 for the PDR 200 and PDR 300 Profile Video File Servers and, with a Master Enhanced Disk Recorder board upgrade, the Profile PDR 100 Video Disk Recorder. Profile disk recorders use digital technology to store and produce broadcast-quality JPEG and MPEG video and CD-quality audio. This manual documents the standard and optional software applications that run on the Profile platform:

- The Profile Configuration Manager configures your hardware for input and output of video and audio, genlock, and system timing.

- The Media Manager manages clips and masters on disk and in a cartridge library system. With Fibre Channel, you can use Media Manager to copy or move media between Profile units.

- The Transcode Utility converts media between different video compression formats, such as from JPEG to MPEG.

- VdrPanel lets you capture and use JPEG and MPEG video and audio clips.

- The Profile Disk Utility lets you manage the Profile systems media disk drives.

- The optional Tool Box Editor records media and performs simple, cuts-only edits. It also allows you to create a sequence of clips called a master.

- The optional List Manager allows you to set up simple station automation.

- The Resource Manager allocates video, audio, and timecode resources for the Tool Box Editor, the List Manager, and Time Delay.

- TimeDelay, also optional, allows you to delay a video feed by a specific amount of time.

- Other Profile utilities include Profile Log (via WinTail), ProLink, and PortServer, among others.

NOTE: This manual assumes that you are familiar with basic Microsoft® Windows™ operation.

Related Documentation

Several manuals related to the *Profile Family User Manual* include:

- On-line manuals. You can access on-line help for an application at any time by choosing **Help | Help Topics**.

- *Profile System Version 2.5 Release Notes*.

- *Profile PDR200 & PDR300 Installation Manual*.

- *PLS20 Library System Manual*.

- *PLS200 Library System Manual*.

- *PRS200/A RAID Storage Instruction Manual*.

- *PRS250 RAID Storage Instruction Manual.*

- *PDX103 Disk Expansion Unit Installation Manual*.

- *PDX208 Disk Expansion Chassis Instruction Manual*.

- *PRC100 Profile Control Panel User Manual.*

- Microsoft Windows NT user documentation.

Terminology and Conventions

Button (graphical)	Buttons shown in bold (**OK**, for example) that you click with the mouse pointer.
Button (mouse)	The two or three buttons on the top of the mouse.
Choosing	Choosing menu items, **File	Exit**, for example. (**File | Exit** means *choose the Exit menu item under the File menu.*)
Commands	Commands (**a:\setup**, for example) are shown in bold.
Clicking	Pressing and releasing the mouse button without moving the pointer.
Ctrl key	Hold **Ctrl** down while pressing other keys in a sequence.
Double-clicking	Pressing and releasing the left mouse button twice without moving the pointer.
Dragging	Pressing and holding the mouse button while moving the pointer.
Moving	Changing the location of the pointer on the screen by moving the mouse.
Pointer	An arrow or other graphic on the screen indicating the current cursor position for selecting or clicking.
Pointing	Positioning the pointer on an object on the display by moving the mouse.
Right-click	Pressing and holding the right mouse button.
Shift key	Hold **Shift** down while pressing other keys in a sequence.

Preface

Introducing the Profile Family

The Profile PDR 100 Video Disk Recorder and the Profile PDR 200 and PDR 300 Video File Servers store broadcast-quality motion JPEG or MPEG (PDR 200 and PDR 300 only) video and CD-quality audio on computer disk drives rather than on video tape, allowing almost instant access to any timecode location of your video and audio material.

A Profile system is more than just a one-for-one replacement of a VTR: it can have up to six record and eight playback video channels. Clips are available on all channels at once, so you can play a clip on more than one channel at the same time, without making a copy of it. Since each channel is independent of the others, each playback can start at a different time and at a different place in the clip.

You can even start playing a clip while it's still being recorded. Just start capturing the clip on one channel, wait about five seconds, and then play the clip back on another channel. This kind of control makes the Profile system an ideal solution if you want to go to air with a clip before you are finished recording it.

> *NOTE: Profile System Software version 2.5 supports the PDR 200, the PDR 300, and, when upgraded with a Master and Slave Enhanced Disk Recorder (EDR) boards, the PDR 100. In addition, version 2.5 runs on Microsoft Windows® NT™ 3.51 and 4.0.*

This version of system software offers support for the MPEG-2 4:2:2 @ Main Level encoder/decoder boards, which are standard in the PDR 300. Upgrading your PDR 200 with MPEG can approximately double its video/audio storage capacity and enables much faster data transfers over Fibre Channel. The MPEG encoder offers both 4:2:2 and 4:2:0 chroma sampling, variable bit rates from 4 Mb/s to 50 Mb/s, and group of picture (GOP) structures from I-frame only to 16-frame GOPs.

MPEG uses motion prediction to increase efficiency—essentially, it uses lower data rates because it does not duplicate video that does not change from frame to frame. MPEG accomplishes this through both backward and forward prediction. To do this, it uses GOPs, consisting of I-frames, P pictures and B pictures.

An I-frame (also known as an I-picture or Intra-picture) is analogous to a single motion JPEG frame, where all data required to display a frame is stored in one picture. A P picture (also called a predictive picture) uses a motion vector to predict what will happen in the next frame and contains only the changed data, rather than passing along another complex frame of video. In addition, a B picture (known also as a bidirectional picture) relies on data from both backward and forward motion vectors to determine how a future frame will be composed. In general, the longer the GOP, the more efficient your MPEG video stream will be.

Table 1 compares the capabilities of the PDR 100 and PDR 200/300. The optional products supported by these disk recorders are listed here:

- MPEG encoder/decoder board (optional PDR 200, standard PDR 300)

- Fibre Channel interface board

- Video mix effects board

- PDX 103 and PDX 208 Profile Disk Expansion Units

- PAC 208 and PAC 216 Analog/Digital Audio Interface chassis (PDR 200/300)

- XLR 216 and BNC 216 Digital Audio Interface chassis (PDR 200/300)

- PRS 200 and PRS 250 Profile RAID Storage Systems

- PLS 20 and PLS 200 Profile Library Systems

- PRC 100 Profile Control Panel unit

- LVS 100 Live Controller

- Profile VideoGateway

- CD-ROM Drive

- Profile Tool Box Editor software

- Profile Tool Box List Manager software

- Profile TimeDelay application software

Table 1. PDR 100 and PDR 200/300 features compared

Feature	PDR 100	PDR 200/300
Video inputs	Analog composite, component analog (CAV), serial digital component	Analog composite, component analog (CAV), serial digital component
Video channels: JPEG CODECs	2 or 4 play/record channels	2 or 4 play/record channels
Video channels: MPEG encoders and decoders	None	1 or 2 record channels (encoders), 4, 6, or 8 playback channels (decoders); Optional PDR 200, Standard PDR 300
Disk drives	Up to eight 4-GB SCSI	Up to eight 9-GB Ultra-SCSI
Audio	Up to 16 channels, 16-bit analog standard; digital embedded optional (625 only)	16 channels, digital standard (AES/EBU, embedded); up to 32 channels possible; analog optional
Digital audio interfaces	None	XLR 216, BNC 216
Analog audio interfaces	XLR 100	PAC 208 (8 channel), PAC 216 (16 channel)
Internal storage at 24 Mb/s	3 hours	6 hours (JPEG), 12 hours (MPEG)
Mainframe bandwidth	24 Mb/s	30 Mb/s
Ethernet	10/100 BaseT	10/100 BaseT
Video network	Fibre Channel upgradeable	Fibre Channel ready
RS-422 protocols	Profile, Louth, Odetics, BVW	Profile, Louth, Odetics, BVW
Reference signals	NTSC and PAL	NTSC and PAL
Line formats	525/60 and 625/50	525/60 and 625/50
Video compression	Continuously variable motion JPEG	Continuously variable motion JPEG, MPEG 4:2:0 or 4:2:2

A Profile System Overview

The PDR series of video servers are multichannel digital disk recorders. Both the PDR 100 and PDR 200 are capable of supporting up to four play/record channels (codecs) of continuously variable motion JPEG video compression. The PDR 200 and PDR 300 support Fibre Channel networking and MPEG 4:2:0/4:2:2 video compression, with up to two record channels (encoders) and up to eight playback channels (decoders). Each channel can play back one video and up to 16 audio signals, each capable of using different video formats. In other words, one Profile unit can replace the functionality of up to eight VTRs, with the added benefit of random access to video and audio data stored on disk.

The Profile system has an EISA motherboard with an internal digital video routing system. There are sixteen EISA slots and one ISA slot used for interface cards and routing audio data. The server also uses a PCI bus for routing data between the master and slave enhanced disk recorder (EDR) boards, Fibre Channel boards, and MPEG boards.

A video router chip set is integrated on the mother board. It routes video signals between the video disk system, video mix effects cards, and video I/O cards. The video router is a 32 x 32 crosspoint matrix capable of full bandwidth 4:2:2 CCIR 601 8-bit digital video. The video router allows real-time transfer of video throughout the system without impacting overall system performance. The video router also makes possible simultaneous record and playback on separate channels.

A block diagram showing the hardware layout of a PDR 200 or above is shown in Figure 1 on page 27.

Video Disk Subsystem

In the video disk subsystem, video data is compressed and written to up to eight 4-gigabyte (PDR 100 only) or 9-gigabyte disks, and then read from these disks and decompressed. This video data is read from and written to the video router in 8-bit, parallel component digital video format. The video disk subsystem has disk recorder boards (PDR 100) and enhanced disk recorder boards (PDR 200 and above), with an Intel i960 real-time processor and a SCSI-2 interface to the disks.

The video disk subsystem uses master and slave disk recorder or enhanced disk recorder (EDR) boards with two SCSI-2 channels on each board. The master disk recorder board comes standard with a two-channel JPEG codec.

Bidirectional codec channels allow channels to be configured for recording or playback. By adding a slave disk recorder board, a Profile unit becomes a four-channel JPEG system. The master board has a Intel i960 real-time processor which controls compression and the data flows on SCSI-2 channels and JPEG codecs. Master and slave EDR boards also control MPEG encoder and decoder boards which are connected to the master and slave via a PCI interconnect board.

Video Compression

The i960 on the master board is used to control data flow and compression coefficient loading of the JPEG codecs and, if present, MPEG encoders and decoders. The amount of JPEG video compression varies according to the setting of the compression coefficient; the amount of MPEG video compression varies according to the bit rate. Higher compression ratios or bit rates store more video, but the result is lower quality video. On the other hand, lower compression ratios or bit rates result in higher quality video and less storage capacity. Audio, however, is not compressed.

Since the video compression ratio can be varied to change the video quality given available storage time, the amount of storage depends on your choice of compression ratio. A quick rule of thumb is that five minutes of JPEG video—plus four channels of audio and two channels of timecode—is roughly equal to one gigabyte of disk storage at 75,000 bytes per field in the 525 standard video format. For example, a PDX 208 Disk Expansion unit expands storage up to twelve hours and a PRS 200 RAID Storage System can bring it up to approximately 96 hours. For video stored in the MPEG format at an average 24 Mbps, you can just about double these capacities.

In addition to video compression, the disk recorder boards also integrate the digital audio data coming from the EISA bus, with typically four channels of audio per channel of video (up to 32). These recorder boards communicate with the SCSI-2 interface using a Direct Memory Access (DMA) interface. The PDR 200 also supports the audio signal processing board (ASPB). This board is capable of delivering 16 channels of analog, embedded digital, or AES/EBU digital audio. The PDR 200 can be equipped with two of these boards, for a total of 32 channels of audio.

Video and Audio Interface Boards

Video and audio interface boards receive incoming and send outgoing video and audio data. These boards are responsible for converting the video and audio to internal formats used by the video server.

The PDR 200 and PDR 300 come with the Audio Signal Processing board (ASPB). This audio architecture accepts and simultaneously processes sixteen audio inputs and outputs. Internally, all audio is processed with a selectable storage resolution of 16 or 20 bits. Inputs may be individually clocked in groups of four, and any clock group may be referenced to the system reference (house black) or any one of four video inputs. Output clocking is synchronous to system reference. Sample rate conversion is available for all inputs (30 to 50kHz), providing uniform storage at 48kHz.

You can configure the PDR 200 or 300 to operate with analog, AES/EBU digital, or embedded (SMPTE 272M Level A) audio, depending on which options are installed in your system. All three audio formats are supported without external conversion equipment. Analog audio is only available with an optional PAC 208 or PAC 216 Analog/Digital Interface chassis. You can expand the number of XLR or BNC connectors for AES/EBU audio with an optional XLR 216 or BNC 216 Digital Interface chassis.You can choose an audio format for each video channel. For example, you could enable analog audio on one channel, embedded audio on another, and AES/EBU on the rest.

There are several video boards that allow a Profile video server to be used with various standard video formats: composite analog, serial digital component, or component analog video are all possible. All boards accept 525 or 625 (NTSC or PAL) video standards.

The latest analog composite input and output board offers two input and output channels per board. The two output channels for this board are similar to the output channels of the original analog composite board. An analog composite monitor board allows you to display text and burn-in timecode on an output monitor.

The component analog input allows dithering, auto-timing, and vertical blanking. As with other inputs, you can automate VITC detection. You can adjust input gain and also select an input format such as Betacam.

A serial digital component board provides two channels of both input and output, plus embedded audio when used with an ASPB. You can also enable dithering, auto-timing, and automate VITC detection. The board also has error detection and handling.

The standard reference genlock board allows you to time your Profile server to other devices in a broadcast facility. You can lock a Profile unit to a PAL or NTSC reference signal (house black). The genlock board also lets you have LTC inputs and outputs, with four inputs and four outputs possible for each channel.
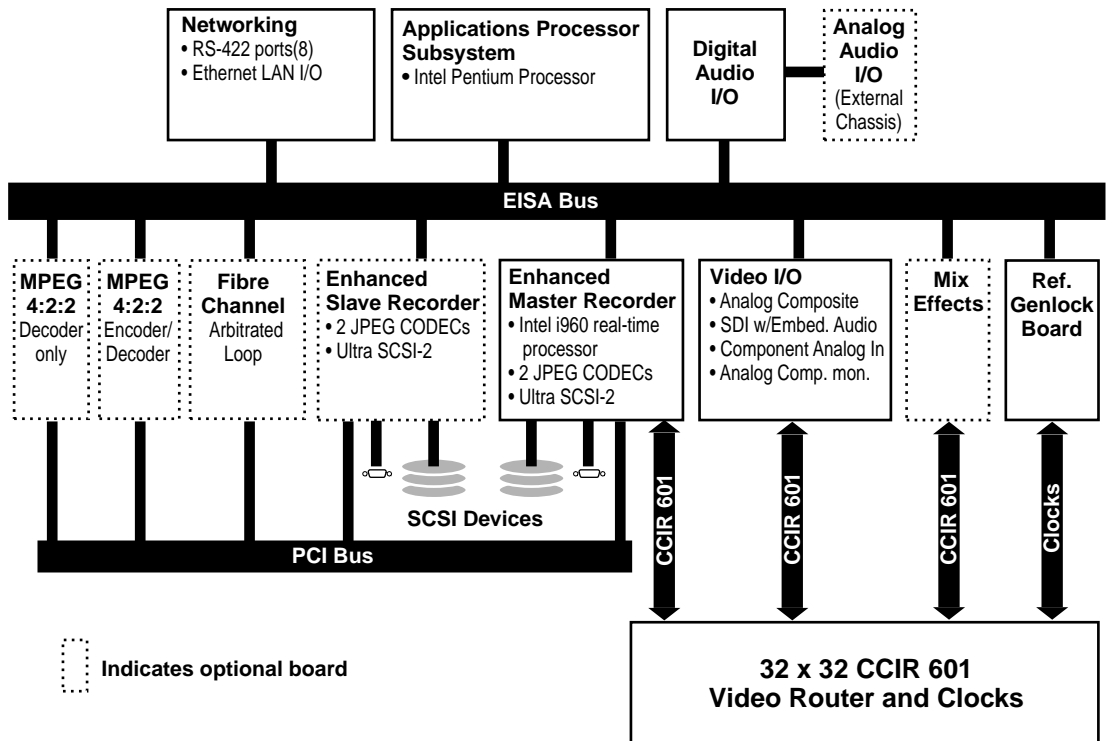
Figure 1. The PDR 200/300 block diagram

Profile Software Development

The Profile Software Development Kit (SDK) provides an application programming interface (API) for libraries of Profile functions. We recommend that you call these functions via Microsoft Visual C++ 5.0; however, it is possible to use other languages that permit calls to C declared functions (contact your Tektronix representative for more information). Software developers can use the API to control the Profile from third-party hardware devices, for example. The API consists of seven libraries:

- The TekCfg library provides an interface to the Profile configuration.

- The TekPdr library furnishes calls that inventory and manage movies in Common Movie Format (CMF), an internal file format standard for video, audio, and timecode.

- The TekRem library makes it possible for a remote Windows NT system to control a Profile disk recorder over an Ethernet LAN.

- The TekVdr library provides an interface for playing and recording video and audio clips.

- The TekVfs library supports low-level access to individual media files in the media file system.

- The TekVme library controls the optional video mix effects board.

- The TekXfr library supports media streaming of Fibre Channel connections.

Eight RS-422 serial ports come standard on a disk recorder. A disk recorder can issue serial commands or receive them from an external device via RS-422 communication lines. The Profile Protocol associates each API call with a specific number that can be sent over an RS-422 line. The ProLink application monitors Profile Protocol calls over an RS-422 link, allowing you to use compatible hardware devices, such as the PRC100 Control Panel, to issue commands to a Profile unit.

Windows applications are also available to control the Profile system. Your disk recorder comes with several standard and optional applications. See "Starting and Closing Profile Applications" on page 31 for more information.

> ***NOTE: Louth and Odetics RS-422 protocols are also supported, although there is not a one-to-one correspondence between these protocols and the Profile API. Louth and Odetics protocols do not allow you full access to the functionality of the Profile system.***

What to Read First

The order in which you should read the chapters of this manual depends on how you want to set up your Profile system.

- Before using your Profile unit, you must first configure your video and audio boards. Refer to Chapter 2, "Using the Profile Configuration Manager."

- If you are upgrading a PDR 100 to version 2.5 of Profile system software from version 1.4.XX or earlier, you must install enhanced disk recorder (EDR) boards and you must rebuild your file system. To install the EDR boards, you must install a field kit that is sold separately. To rebuild your file system, refer to Chapter 5, "Using the Profile Disk Utility." Your file system may consist of internal disks, a disk expansion unit, or a RAID unit.

- Once you have configured your video and audio boards, and, if necessary rebuilt your file system, you are ready to capture and replay video and audio clips. Refer to Chapter 4, "Using VdrPanel."

- To configure your Fibre Channel board, see Chapter 7, "Fibre Channel Video Networking."

- To read Profile logs, access your Profile system from a remote PC, or attach a PRC 100 Profile Control Panel, refer to Chapter 6, "Using Profile Utilities."

- To learn how to manage media on disk or over Fibre Channel on a Profile network, see Chapter 3, "Using Media Manager."

- If want to use optional software applications, see Chapter 8, "Using the Tool Box Editor," Chapter 9, "Using the List Manager," or Chapter 11, "Using TimeDelay." To allocate resources for Tool Box Editor, List Manager, and TimeDelay, see Chapter 10, "Using the Resource Manager."

Starting Your Profile System

Once the unit is properly installed, you are ready to log in. For instructions on how to install and power-on a PDR 100, PDR 200, or PDR 300 see the installation manual that came with the unit.

To log in automatically:

Power up the Profile unit, and the start up routine begins. During normal start up, you are logged in automatically and the VdrPanel application starts. You can hold down the **Shift** key during start up to interrupt the automatic log in process.

NOTE: If you stop the automatic log in, or if it fails, the Windows NT log in dialog box appears. When logging in, remember that this dialog box is case-sensitive.

To manually log in:

1. At the Windows NT 4.0 log in window, enter the username: **profile** (However, you must log in as **administrator** when installing software, performing Windows NT administration, starting a service, or setting an Ethernet IP address.)

2. Use the Tab key to advance to the password field.

3. The password appears as asterisks (*) for password security. For the password, enter: **profile**

4. Use the Tab key to advance to the **From** field.

5. If your domain name or local computer name is not displayed in the box, click in the box to access a list of choices. Select your domain or local computer name from the list.

6. Click **OK** or press Enter.

*NOTE: If a log in error message appears, and all the information is correct, try deleting the password and clicking **OK**.*

Starting and Closing Profile Applications

After logging into your Profile system, you see shortcut icons for the Profile applications on the Windows NT 4.0 desktop.

Figure 2. PDR Application shortcuts on the Windows NT 4.0 desktop

Starting an Application

To start a Profile application—VdrPanel in these examples—using Windows NT 4.0:

• Double-click the shortcut icon on the Windows NT desktop.

Or:

• Choose **Start | VdrPanel**.

Or:

• Choose **Start | Programs | PDR Applications | VdrPanel**.

To start a Profile application such as VdrPanel using Windows NT 3.51:

1. In Program Manager, double-click the PDR Applications program group icon.

2. Double-click the **VdrPanel** icon in the PDR Applications program group.

Viewing Help

To view the Help for an application:

• Choose **Help | Help Topics**.

Or:

• Click the **Help** button in a dialog box or a toolbar, if available.

To view version information (for VdrPanel in this example):

• Choose **Help | About VdrPanel**.

Closing an Application

To close Profile applications:

• Choose **File | Quit**, **File | Exit** or click the **Close** button.

Profile Configuration Manager

The Profile Configuration Manager is a graphical user interface for configuring reference genlock, system timing, video and audio inputs and outputs. For more information, refer to Chapter 2, "Using the Profile Configuration Manager."

NOTE: You must configure system resources with Configuration Manager before using your Profile disk recorder.

Media Manager

The Media Manager allows you to manage clips and masters on disk, transfer media between systems, and archive and restore clips on a library system. Refer to Chapter 3, "Using Media Manager."
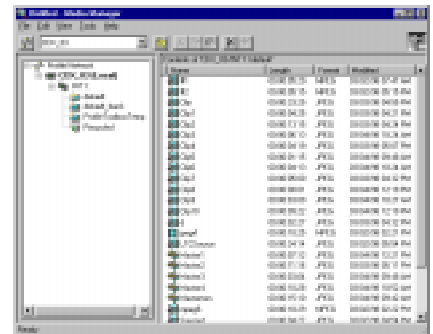
Transcode Utility

The Transcode Utility, which is started from Media Manager, converts motion JPEG media to MPEG or from MPEG to JPEG. You can also change the video quality of a clip. Refer also to Chapter 3, "Using Media Manager."
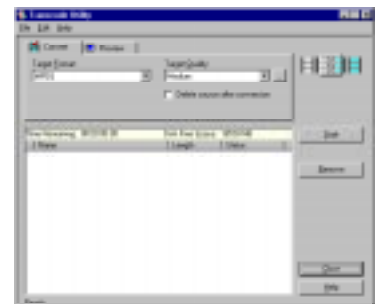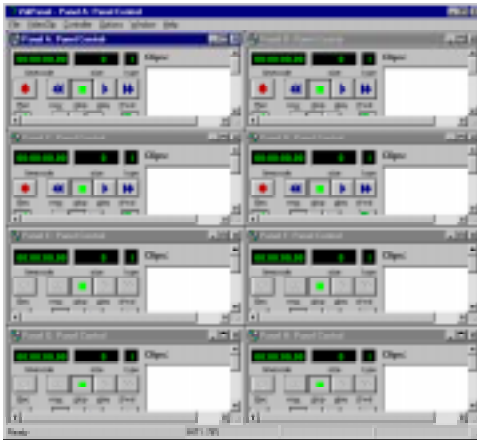
VdrPanel

VdrPanel enables you to capture and trim video and audio clips and then play them back. By default, VdrPanel starts automatically when you power-on your Profile system. For more information, refer to Chapter 4, "Using VdrPanel."
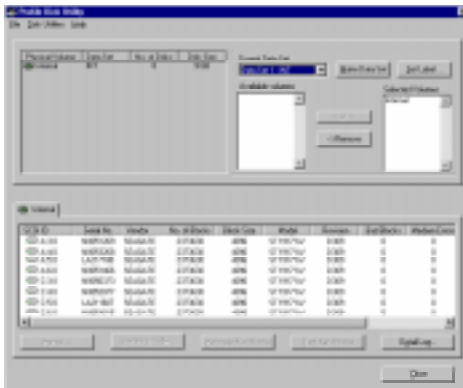
Profile Disk Utility

As shipped from the factory, Profile media disks come preformatted and with a file system already created. Profile Disk Utility allows you to create new file systems, reformat disks, and change disk labels. To find out more about how to use this utility, refer to Chapter 5, "Using the Profile Disk Utility."

NOTE: Locked versions of the following optional applications—Tool Box Editor, List Manager and TimeDelay—were shipped to you with version 2.5 system software. You can use the software for a limited time only. Unlocking this software for permanent use requires an additional purchase. Click **Purchase** *in the timelock dialog box for information on how to purchase this software.*

Tool Box Editor

The optional Tool Box Editor lets you create new media by logging and capturing video and audio clips while also providing an inexpensive, cuts-only editing system. Refer to Chapter 8, "Using the Tool Box Editor."

List Manager

The optional List Manager allows you to set up simple station automation. You can record incoming video at predetermined times, send incoming video directly to an output, or combine all of these functions to increase the automation level of you operations. Refer to Chapter 9, "Using the List Manager."
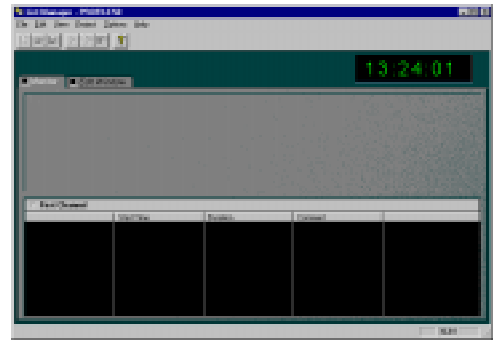
TimeDelay

TimeDelay allows you to delay incoming video by an amount of time you specify. For more information, see Chapter 11, "Using TimeDelay."

Profile Utilities

- **Profile Logs** allow you to view Profile system logs with the graphical log viewer, WinTail. This log viewer allows you to see the end of a log file. To learn more about how to view Profile logs, see Chapter 6, "Using Profile Utilities."

- **ProLink** monitors Profile Protocol calls over RS-422 communication lines, allowing you to use a controller such as the PRC 100 Control Panel to communicate with a Profile system. For more information on Profile Protocol, see the documentation that accompanies the Profile Software Development Kit.

- **PortSever** allows you to control a Profile unit remotely using Ethernet communications. For example, you can run PortServer on a remote Profile system so that you can control it over a LAN from another Profile or PC. PortServer is generally used in conjunction with Fibre Channel operations.

- **PDR Access Control** is a Windows NT service that prevents one application from crashing another application by mistake. Though largely transparent to users, the service prevents applications from accidentally reloading the video processor while in use, essentially providing a controlled gateway to the processor.

- **Update Firmware** reprograms components on boards in your PDR 200 Video File Server, such as the Master Enhanced Disk Recorder (EDR) board. Updating the firmware in the selected components of these boards ensures that software and hardware will function together as expected.

- **Update Fibre Channel Microcode** updates the microcode on Fibre Channel boards.

Fibre Channel Support

You can use Fibre Channel video networking capabilities to move media from one Profile unit directly to another. With Media Manager, you can use the Fibre Channel connection to transfer media files between machines. Ethernet LAN is also required for transferring commands and status information. For more information, see Chapter 7, "Fibre Channel Video Networking."

Using the Profile Configuration Manager

The Profile Configuration Manager provides an easy-to-use interface that streamlines the set up of reference genlock, video and audio inputs and outputs, system timing, and timecode for your Profile video disk recorder. The configuration tree allows you to open the specific configuration dialog boxes that control the settings. A graphic representation of the Profile rear panel at the bottom of the Configuration Manager window shows which boards are installed. The Configuration Manager window appears in Figure 3.
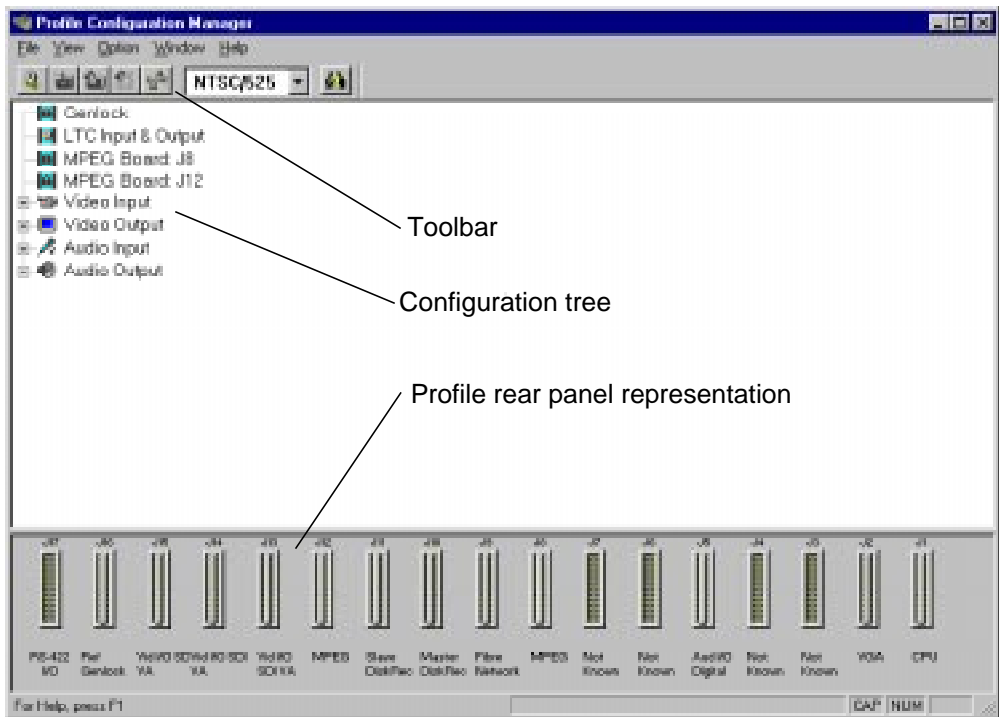
Figure 3. Profile Configuration Manager window

To select an item from the configuration tree:

- Theconfiguration tree appears on the left side of the window. Clicking on an entry, such as **Video Input**, expands the list of choices. Clicking on an expanded list of choices, such as if you click on **Video Input** a second time, collapses the list of choices.

- A single click opens the specific dialog box, closing a previously opened box, if necessary. A double-click opens the specific dialog box but does not close any other open dialog boxes. To close all open dialog boxes at once, choose **Window | Close All**.

All changes in a dialog box take place immediately. The **Undo** button will undo changes from the time a dialog box was opened in the current tab of the dialog box. The **Undo** button is dimmed if there is nothing to undo. The **Help** button opens context-sensitive help related to the current dialog box.

By default, the toolbar and status bar are shown in the Configuration Manager window. To hide the toolbar or status bar:

- Choose **View | Toolbar** or **View | Status Bar**.

To view information about installed boards:

- Choose **Help | Installed Boards Information**.

Saving a Configuration File

It is possible to preserve a configuration for later use. You can save your current overall configuration in a file and then load it later. Configuration files have a *.cfg* extension. To save your current configuration in a file:

1. Choose **File | Save Current Configuration**. The Save As dialog box appears (Figure 4).

Figure 4. Save As dialog box for saving a configuration file

2. Enter a file name in the File Name box—*new.cfg* in this example.

3. Press Enter or click **Save**. The current configuration is saved.

Loading a Configuration File

To load a configuration file that has been saved previously:

1. Choose **File | Load Configuration File**. The Open dialog box appears (Figure 5).
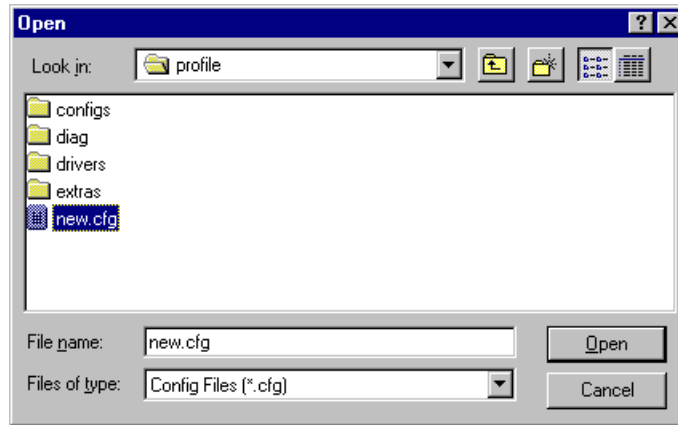
Figure 5. Open dialog box for loading a configuration file

2. A message box warns you that if you load a configuration file, all open windows are closed. Click **Yes** to continue.

3. Double-click a file name in the tree or type the name of the file in the File Name box—*new.cfg* in this example.

4. Press Enter or click **Open**. The file is loaded as the current configuration.

Setting Master Timecode

From the Master VITC Setting dialog box, you can conveniently view and change VITC settings for genlock and all available inputs and outputs. To set the master timecode (VITC) settings:

1. Choose **Option | Master Timecode** or click the **Master Timecode** button on the toolbar. The Master VITC Setting dialog box appears (Figure 6).
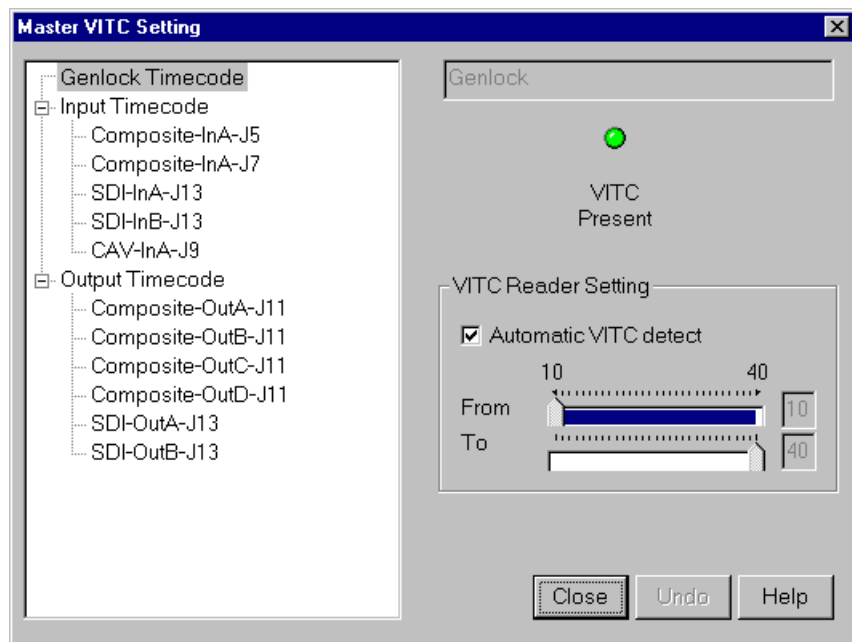
Figure 6. Master Timecode dialog box, genlock settings

2. The VITC Present status indicator should be on (green) if VITC is present. If VITC Present is not on, use one of the following options:

- ManualVITC detection (four-channel LTC version of the reference genlock board):

  - Verify Automatic VITC detect is not selected. If it is, click to toggle it.

  - Set VITC Reader Line1 to the expected location of the first Reader Line and VITC Reader Line2 to the second expected Reader Line. If you only have one VITC line, enter the same value on both Reader lines.

  - Check VITC Present. If it is still not on, use a waveform monitor to check the genlock signal to make sure that VITC exists on these lines.

- Automatic VITC detection only:

  - Verify Automatic VITC detect is selected. If it is not, click to toggle it. The Search Lines are automatically established for NTSC/525 and PAL/625.

  - Check VITC Present. If it is still not on, check the genlock signal to make sure that VITC exists and is within the expected range.

3. For each video input that should have VITC, select it from the list:

- For automatic VITC detection on analog composite and serial digital component signals:

  - Verify Automatic VITC detect is selected. If it is not, click to toggle it.

  - Set VITC Reader Line1 to the beginning of the search line. The minimum line number is 6 in PAL and 10 in NTSC.

  - Check for VITC Present.

- For manual VITC detection on analog composite and serial digital component signals:

  - Verify Automatic VITC detect is not selected. If it is, click to toggle it.

  - Set VITC Reader Line1 and VITC Reader Line2 to the lines where VITC is located. If you only have one VITC line, enter the same value on both Reader lines.

  - Check VITC Present. If it is still not on, double check your line numbers and try again.

4. For each video output that should have VITC, select it from the list:

- For analog composite on preexisting PDR 100 and PDR 200 units:

    - Verify VITC Generator Enable is checked. If not, click to toggle it.

    - Click on Vert. Interval to open the Vertical Interval Line Programming dialog box.

    - Select the desired VITC lines by checking in the VITC Enable column for the line. There is not a limit on the number of VITC lines.

    - Click **Close** to close the Vertical Interval Line Programming dialog box.

- For serial digital component:

    - From the Serial Digital Component Video Output dialog box, set the lines where you want VITC in VITC Generator Line1 and VITC Generator Line2.

    - Verify VITC Generator Enable is checked. If not, click to toggle it.

Setting the System Timing

A new, factory-default PDR 200 or PDR 300 is configured so that:

- All outputs are zero-timed to the external reference (house black).

- Each input can lock to and record any stable video input, whether or not the source is genlocked to an external reference.

   NOTE: Serial digital inputs (525 lines) on a PDR 100 must be timed manually.

To adjust system timing:

1. Choose **Option | System Timing** or click the **System Timing** button on the toolbar. The System Timing dialog box appears (see Figure 7 which shows an example of how the dialog box looks when the outputs are zero-timed by default).

   - The red line represents the external reference, and the yellow line represents reference genlock.

   - A hashed box represents a timing window or, in other words, the range of lines within which the timing is adjusted.

   - The external reference, represented at the top of the dialog box, shows a range from –16 to +16 lines. You can scroll past this range by dragging the pointer on this line in either direction with the mouse.

2. Click any button to the left of the internal reference (genlock) or video output signal name and the timing edit box appears in the bottom left of the System Timing dialog box (see Figure 8 which shows the dialog box when the outputs are E to E timed).

3. In the timing edit box, you can adjust the number of fields (genlock only) or lines, and also tune these settings with course or fine adjustments. You can enter a number directly or click an arrow to adjust a setting. The adjustments and ranges available vary, depending on the type of output you have.

4. Click **Close** to accept the settings, **Undo** to return to the previous settings, **Default** to return to the default settings.

   NOTE: You must restart your unit for the new system timing setting to take effect.

You can also fine tune your system timing settings individually under Reference Genlock System Input Advanced Adjustment in the Reference Genlock dialog box. You can also tune individual output settings under Output Timing Adjustment in under Video Output.
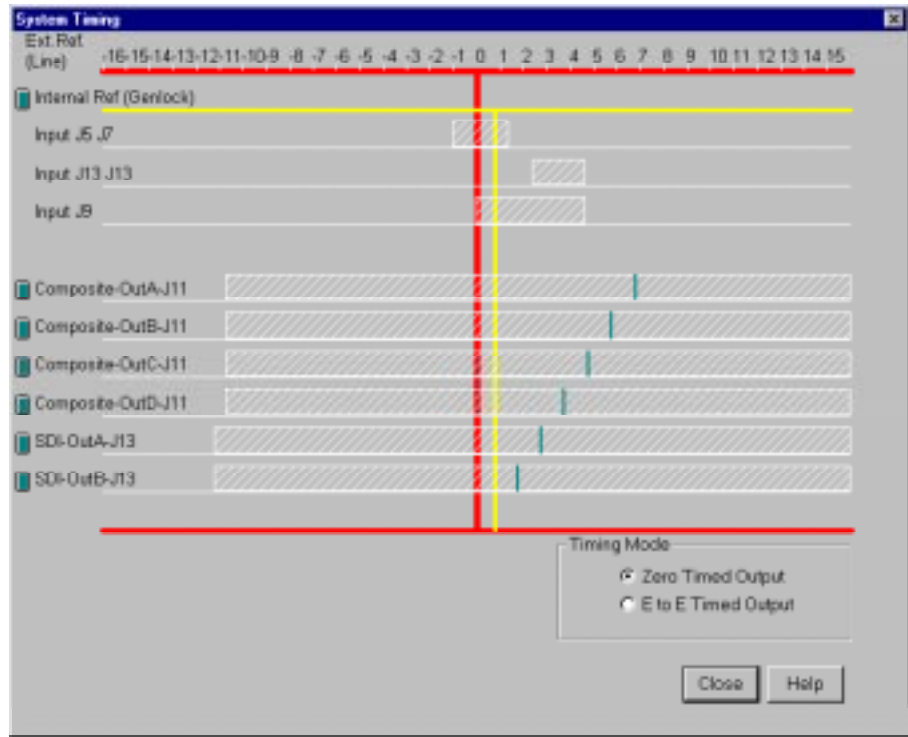
Figure 7. System Timing dialog box, zero-timed

E to E Timed Outputs

In some applications, you may want to precisely switch an output from a live video feed to playback of recorded material. Since the live input will be delayed as it passes through the Profile unit, you must set a corresponding delay on the playback. The E to E Timed Output option sets a 1*6-line delay* on all the system outputs, allowing a zero-timed input to be exactly timed with a play to air signal. To set all your Profile unit output for E to E operations:

1. Choose **Option | System Timing** or click the **System Timing** button on the toolbar. The System Timing dialog box appears.

2. Click **E to E Timed Output**.

3. Click **Close**.
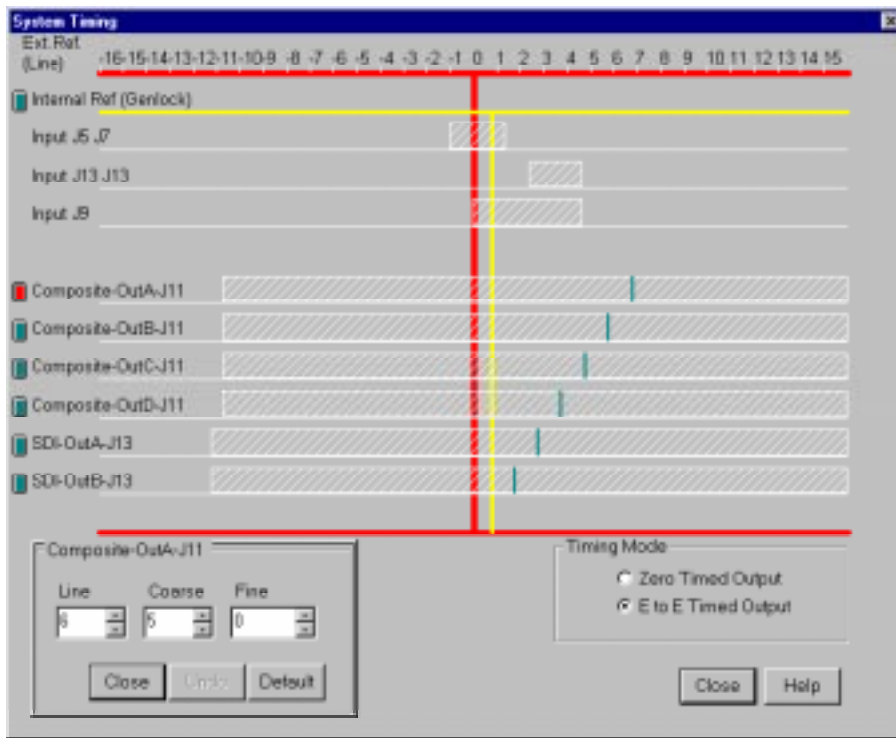
Figure 8. System Timing dialog box, E to E timed

Adjusting the Timing when Upgrading to 2.5

If you are upgrading an existing PDR 100 to system software version 2.5, your system timing will be left in E to E mode and no changes will be made to your system timing. The only difference you will see is a numeric offset of 7 lines in the Line setting under Reference Genlock System Input Advanced Adjustment in the Reference Genlock dialog box and an offset of nine lines in the Vertical Line Delay under Output Timing Adjustment under Video Output.

Auto Timing

Auto-timing determines if the input is synchronized to the reference genlock signal. The disk recorder records time-base corrected video whether or not it is also locked to the reference. If auto-timing is enabled and the signal was able to be timed into the system, the **Auto Timed** indicator at the top of the video input dialog box is turned on.

If you want to use the disk recorder as a switcher and/or have the output video correctly timed when in E to E mode, the input video must be locked to the reference and properly timed to the disk recorder. To aid in the timing setup, all video inputs have auto-timing circuits which synchronize input video to the internal timing reference as long as the input video is within the auto-timing sync window (±2 lines for the latest analog composite boards, ±1 lines for all others). To get to the auto-timing window, input must be advanced 7 1/2 lines.

The auto-timing circuit is always trying to lock to the signal. If you try to auto time a signal outside of the window, the video signal appears to be broken-up as it cannot be timed into the system. If the input drifts out of range, it is retimed as soon as it drops back into range. The disk recorder can use untimed signals if auto-timing is not enabled, but they are not timed correctly and may cause jumping and skipping in E to E mode.

> *NOTE: If you select auto-timing for an input signal and it cannot auto time with the genlock reference signal, the input signal is not recorded accurately. If you must record an input that cannot lock, disable auto timing and then record. There may be problems if you are operating in E to E mode, but the clip plays back correctly timed.*

If auto-timing is enabled, and the signal was able to be timed into the system, the Auto Timed indicator is turned on. Also, for serial digital component input, Line 1 can still be adjusted, but Line 2 is always equal to Line 1 + 14.

Setting the Reference Genlock

The Reference Genlock dialog box sets the genlock parameters for VITC reader settings and internal reference timing. At the top of the dialog box, the status indicators display the current status of the genlock input: Locked to External Reference, Internal Clock Locked and VITC Present. A green light indicates that a particular status is on. These indicators cannot be edited.

To change the reference genlock settings:

1. Click or double-click **Genlock** from the configuration tree and the Reference Genlock dialog box appears (see Figure 9).
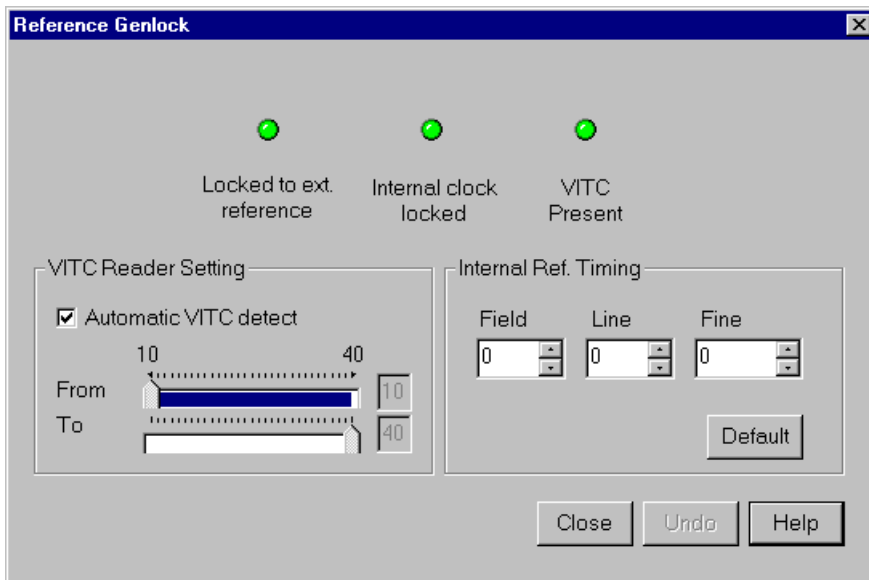
Figure 9. Reference Genlock dialog box

2. Click Automatic VITC Detect to have the Profile disk recorder use the range set in the **From** and **To** lines to look for the VITC (vertical interval timecode) signal. If the VITC signal is found, the VITC Present indicator is turned on. Otherwise, when you do not use Automatic VITC Detect, the disk recorder expects to find the VITC signals on VITC Reader Line 1 (default 10) or Line 2 (default 12).

3. Use the Field, Line, and Fine entries to adjust the internal timing relative to the reference input. Changing this setting affects *all* system timing, including all output timing and the input synchronized timing window. Click **Default** to return to the default timing values (0,0,0).

    NOTE: In order to properly time the disk recorder, the Internal Reference Timing should only be changed if the downstream timing requirements cannot be met using the video output Timing Adjustment (see "Video Output" on page 67). This should be done prior to setting individual output delay adjustments.

4. Click **Undo** to return all values in the dialog box as they were set at the time the dialog box appeared.

5. Click **Close** to accept the changes.

Changing LTC Input and Output Names

The LTC (longitudinal timecode) inputs and outputs dialog box allows you to rename the LTC inputs and outputs.

To change an LTC name:

1. Click or double click **LTC Input & Output** in the configuration tree and LTC Input & Output dialog box appears.
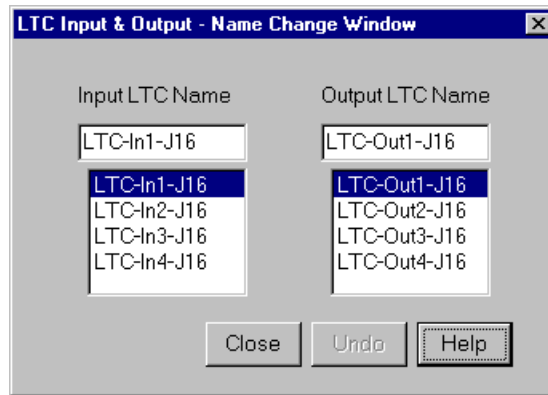
Figure 10. LTC Inputs & Outputs dialog box

1. Select an LTC input or output name.

2. Position the edit cursor within the appropriate edit box.

3. Enter the new name or portion of a name.

4. The new name appears in the name list.

5. Click **Undo** to return the name or names as they were at the time the dialog box appeared.

6. Click **Close** to accept the new LTC name or names.

Setting MPEG Input Timing

If you have one or more MPEG board(s) installed that have decoders only (no encoders) and you are running in BVW [insert edit] mode (see "Setting up BVW [insert edit] Emulation" on page 172), you need to obtain a timing signal from a video I/O board to synchronize your output.

To select a timing input for the MPEG board:

1. Click or double-click **MPEG Board** from the configuration tree and the Input Timing Selection dialog box appears (see Figure 11).

MPEG Board: J13

Input Timing Selection

Composite-InA-J11

Close   Undo   Help
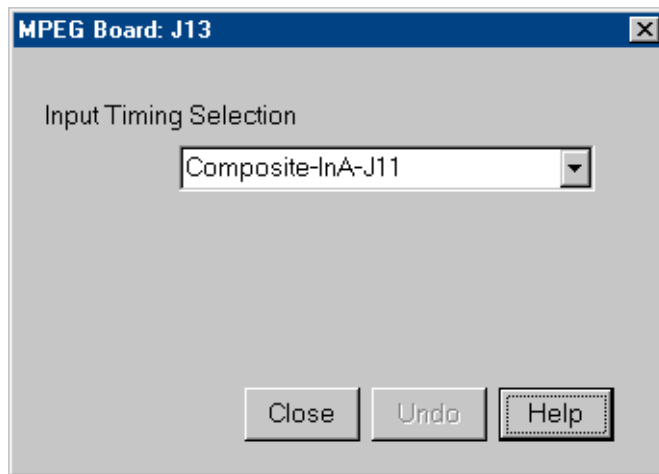
Figure 11. MPEG Input Timing dialog box

2. In the Input Timing box, select the board from which you want to get the timing signal.

3. Click **Undo** to return to original input timing source.

4. Click **Close**.

Video Input

You may have analog composite, component analog (CAV), or serial digital component video inputs installed in your Profile system. The steps to configure video inputs follow.

Analog Composite Video Input

The indicators at the top of the dialog box show the current status of the analog composite video input. The indicators are **VITC Present**, **Input Locked**, and **Auto Timed** (also **Burst Present** for earlier analog composite cards). A green light indicates that a status is on. These are indicators and cannot be edited.

To configure analog composite video input:

1. Select **Video Input** from the configuration tree, and then click or double-click an analog composite input from the list, such as *Composite-InA-J5*. The Analog Composite Video Input dialog box appears (Figure 12 for current analog composite cards and Figure 13 for earlier cards).
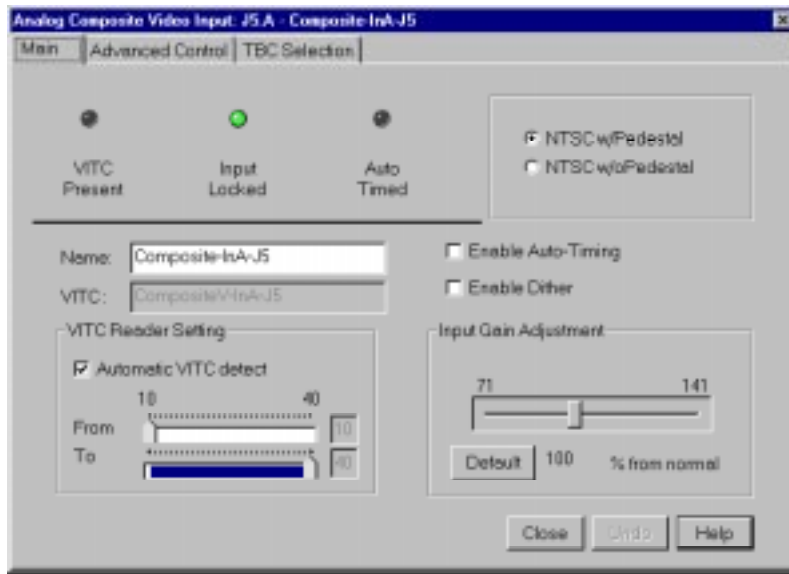
Figure 12. Analog Composite Video Input dialog box, Main tab (A)
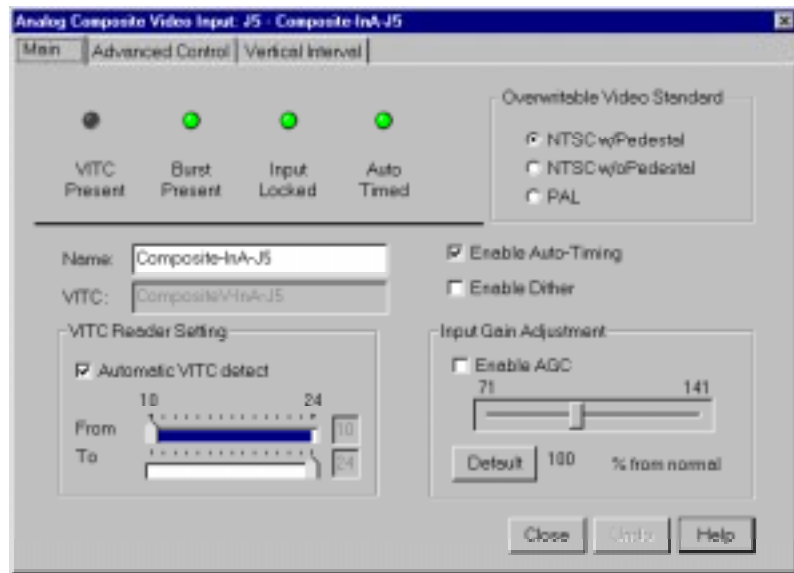
Figure 13. Analog Composite Video Input dialog box, Main tab (B)

2. If you prefer, enter a new name for the input signal in the **Name** box. For example, if the signal is a network feed, you could rename it to *Network_Feed*. The VITC name, the window title bar, and the configuration tree name change automatically as you enter the new name. Names can be up to 30 characters, and can include spaces. To return a renamed signal to the default, delete all the characters in the text field, and press Enter.

3. Select a video standard. Click either **NTSC with pedestal**, **NTSC without pedestal**, or **PAL** (PAL is available only with earlier cards). If you change the standard, restart all tools that use this channel. The board can accept only one input at a time.

4. If you use **Automatic VITC Detect**, the Profile unit uses the range set in the **From** and **To** lines to look for the VITC signals. If **Automatic VITC Detect** is not checked, the system expects to find the VITC signals on the VITC Reader Line 1 (default 10) or Line 2 (default 12). If the signal is found, the VITC Present status indicator is turned on.

NOTE: Input must be auto-timed to use automatic VITC detection.

5. If you want video input auto timed, click **Enable Auto-Timing**. Auto-timing determines if the input is synchronized to the reference genlock signal. The disk recorder records time-base corrected video whether or not it is also locked to the reference. If auto-timing is enabled, and the signal was able to be timed into the system, the **Auto Timed** indicator is turned on. For more information on auto timing, see "Auto Timing" on page 47.

6. Click **Enable Dithering** if the incoming signal is 10-bit resolution. This produces the best quality result. The LSB artifacts on 10-bit video feeds are reduced. There is no effect if the incoming signal is 8-bit.

7. Click **Vertical Blanking** to enable vertical blanking. When enabled, for the 525 standard, lines 1 through 9 and 264 through 272 are blanked; for the 625 standard, lines 1 through 5, 311 through 317, 624, and 625 are blanked.

8. Adjust the input gain on the syncs to compensate for any losses in the input. You can adjust the gain manually or, with earlier cards, click **AGC** (Automatic Gain Control) which enables the internal quality monitoring circuit to automatically adjust the gain to keep the sync level constant. To adjust the gain manually, move the slider to the desired value. The range is from 71 to 141 percent (±3 dB) of the input signal. (For earlier cards, the range is from 45 to 142 percent (±3 dB) of the input signal for NTSC and 82 to 142 percent for PAL.) When you click **Default**, the Input Gain Adjustment resets to the default value (100 percent).

9. Click **Undo** to return the values in the dialog box to their original settings.

10. Click **Close** to accept all inputs.

Analog Composite Video Input Advanced Control

The Advanced Control tab allows you to select a decode mode, clamp speed, and other settings, depending on which analog composite card you have. To change advanced controls settings:

1. Click or double-click on the **Advanced Control** tab to view it (Figure 14 shows the dialog box for the most recent analog composite video cards while Figure 15 shows the dialog box for earlier cards).
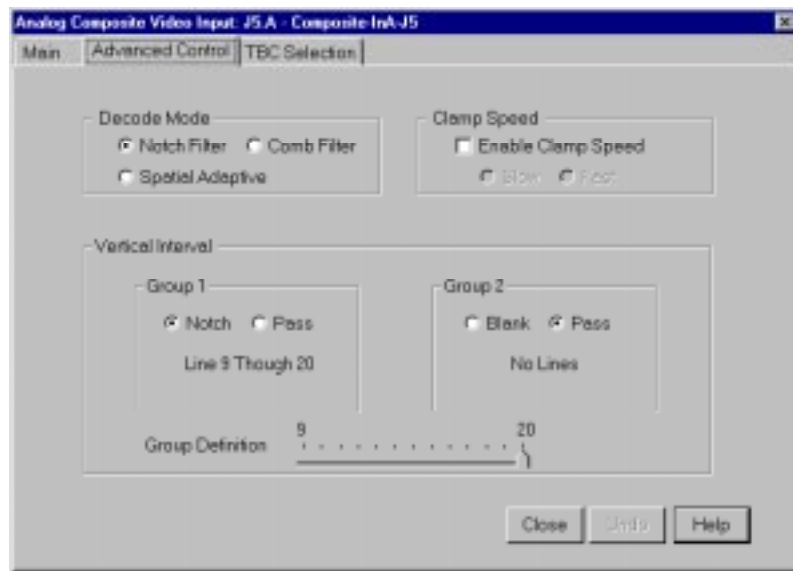
Figure 14. Analog Composite Video Input dialog box, Advanced Control tab (A)
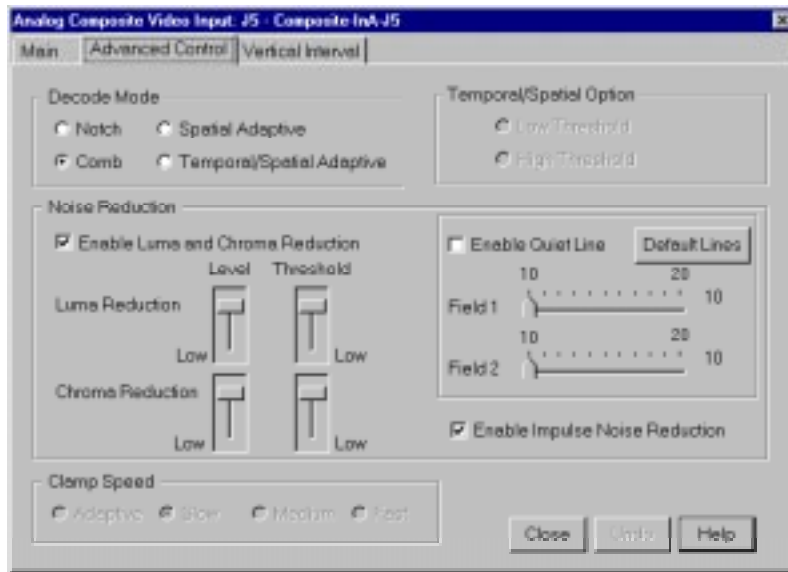
Figure 15. Analog Composite Video Input dialog box, Advanced Control tab (B)

2. Click a setting for decode mode. Decode mode determines how the chrominance and luminance information is separated for conversion for storage. There are three options for the current analog composite cards and four options for the earlier cards:

- **Notch Filter.** Decode mode separates the chrominance by using a notch filter around the chrominance subcarrier. This leaves the high frequency luminance intertwined with the chrominance. A notch decoder readily determines horizontal lines are line-to-line luminance. Fine vertical lines can be more difficult.

- **Comb Filter.** Decode mode tries to separate high frequency luminance from the chrominance using the same notch filter as the notch decoder, but also takes information from the next line. It uses this information to determine if high frequency is luminance or chrominance. A comb decoder readily determines finely spaced vertical lines are luminance. A lack of line-to-line phase alteration causes difficulty with fine horizontal lines.

- **Spatial Adaptive.** Decoding uses either the comb or notch decoder, on a pixel by pixel basis, depending on which gives the best results. For horizontal lines, notch is used; for vertical lines, comb is used.

NOTE: Spatial adaptive and temporal/spatial adaptive decoding uses the high or low threshold setting.

- **Temporal/Spatial Adaptive.** This is for earlier analog composite cards only. Decoding uses both the next line and the same line in the alternate field in the calculations. This decoder uses all of the properties of the Spatial Adaptive decoder, plus it uses Temporal (interfield changes) information. The phase change (or lack of) from field to field helps determine whether high frequency should be decoded as chrominance or luminance. The threshold determines the amount of motion allowed between alternate fields to still have the Temporal decoder recognize the pixel. High allows more motion than Low.

3. For the current analog composite card, click **Enable Clamp Speed** to enable it. Clamp speed sets the reaction to changing DC levels of the input signal. Speed can be either slow or fast. The fast clamp speed is more reactive to small DC variations. The slow speed ignores short-term DC level changes but gradually changes the clamping level to track the input.

For clamp speed on earlier cards, click **Adaptive**, **Slow**, **Medium**, or **Fast** under the Clamp Speed group. **Fast** and **Slow** settings are the same for both the earlier and current cards, while **Medium** is a compromise between **Fast** and **Slow**. **Adaptive** uses the best clamp for the current video input. Clamp Speed also helps with white noise reduction. Adaptive is the best choice for white noise reduction. Do not use Adaptive for impulse noise, use Slow and the Impulse Noise Detection option from the Noise Reduction group.

NOTE: If you set AGC (audio gain control) to automatic on the main screen, clamp speed cannot be selected.

4. For current analog composite cards, the Vertical Interval controls set how vertical interval signals are handled. Move the Group Definition slider to set how many lines are in Groups 1 and 2. In Group 1, Notch and Pass are available while Blank and Pass are available in Group 2:

- **Notch** applies notch filtering to the vertical interval video line. This means that chrominance information and any luminance around the chroma subcarrier are removed.

-   **Pass** indicates that the vertical video line is passed-through.

-   **Blank** indicated that line the group are blank.

5. Under Noise Reduction (earlier analog composite cards only), the controls
    enable and set various noise reduction methods:

    -   Click **Enable Luma and Chroma Reduction**. This applies the Level and
        Threshold settings to use a feedback noise reduction scheme on the
        decoded input signals after they have been separated into chrominance
        and luminance. The Level and Threshold sliders determine the amount of
        weight the feedback signal has in comparison to the input signal. The
        Threshold range takes into consideration the amount of motion in the
        picture. Use the sliders to adjust the ranges. Be sure Enable Luma and
        Chroma Reduction is checked for the reduction values to be applied.

    -   Click **Enable Quiet Line**, if desired. This acts as a noise reference. If the
        Quiet line is noise-free, the rest of the signal should also be noise-free.
        This allows the decoder to not mistake noise for motion. If the Quiet Line
        is enabled, the line values for Field 1 and Field 2 are used. Use the sliders
        to set the line values for each field. Click on **Default Lines** to return to the
        default values.

    -   **Enable Impulse Noise Reduction** automatically filters out noise spikes,
        such as amplifier crackling.

    *NOTE: If reduction of impulse noise is selected, the disk recorder
    automatically switches the clamp speed to slow. It is recommended
    that you use the spatial adaptive decode option, although it does not
    automatically switch.*

6. Click **Undo** to return the values in the dialog box to their original settings.

7. Click **Close** to accept all inputs.

Analog Composite Video Input Time Base Correction

The Time Base Correction tab is available only on the newer analog composite cards. To select the settings:

1. Click the **TBC Selection** tab (see Figure 16).
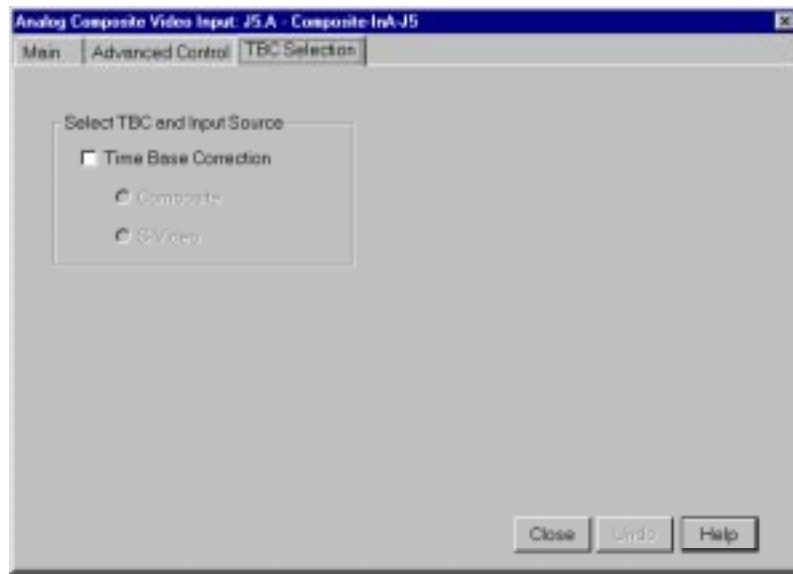
Figure 16. Analog Composite Video Input dialog box, Time Base Correction tab

2. When you select Time Base Correction, you can select either composite input or Super VHS (SVHS or S-video) input. There are two channels available for the most recent analog composite video input board. If Time Base Correction is selected in channel A, channel B is unselected, and vice versa.

3. Click **Undo** to return the values in the dialog box to their original settings.

4. Click **Close** to accept all inputs.

Analog Composite Video Input Vertical Interval

For earlier analog composite cards, the controls under the Vertical Interval tab sets how the vertical interval signals are handled. This tab is visible only if you have an older card in your Profile unit. For the most recent cards, the vertical interval settings are handled under the Advanced Control tab. There are different vertical interval line numbers in the dialog boxes, depending on your video standard—NTSC/525 or PAL/625. To change vertical interval settings:

1. Click or double-click on the **Vertical Interval** tab (see Figure 17).
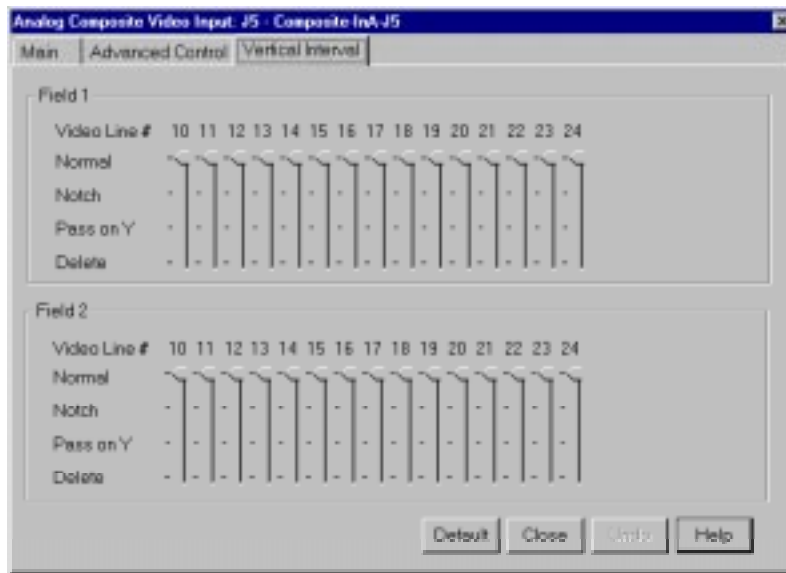
Figure 17. Analog Composite Video Input dialog box, Vertical Interval tab

2. Move the sliders for each individual line to select **Normal**, **Notch**, **Pass on Y**, or **Delete**.

   - **Normal** indicates the vertical interval video line is passed-through.

   - **Notch** applies notch filtering to the vertical interval video line (chrominance information and any luminance around the chroma subcarrier are removed).

   - **Pass On Y** passes luminance information straight through. This is useful for VITC and closed-caption or data filtering.

   - **Delete** removes the vertical interval video line and replaces it with black.

3. Click **Undo** to return the values in the dialog box to their original settings.

4. Click **Default** to return all values to their default values.

5. Click **Close** to accept all inputs.

Analog Component Video Input

You can configure analog component video (CAV) input with the Analog Component Video Input dialog box. The current status indicators, shown at the top of the dialog box, are **Video Present**, **VITC Present**, and **Auto Timed**. The green light indicates that a particular status is on. These indicators cannot be edited.

To configure analog component video input:

1. Select **Video Input** from the configuration tree, and then click or double-click an analog component input from the list, such as *CAV-InA-J9*. The Analog Component Video Input (CAV) dialog box (Figure 18).
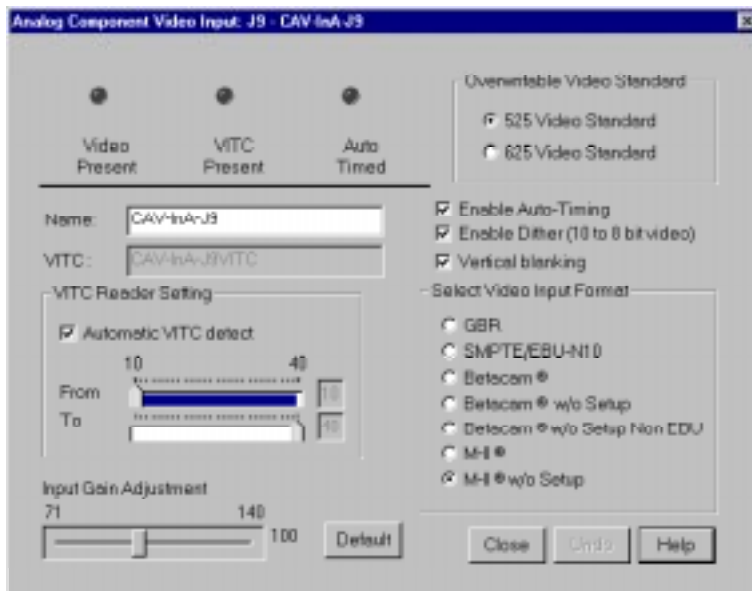
Figure 18. Component Analog Video Input dialog box (CAV)

2. If you prefer, enter the new name in the **Name** box. For example, if the signal is a Betacam input, you could rename it to *Betacam_1*. The VITC name, window title bar name, and the configuration tree name automatically change as you enter the new name. Names can be up to 30 characters, and can include spaces. To return a renamed signal to the default, delete all the characters in the text field, and press Enter.

3. Under **Overwritable Video Standard**, click either **525 Video Standard** or **625 Video Standard**. If you change this standard, you must restart all tools that use this channel. The video input board can serve both standards, but the input can only accept one at a time.

4. Select a VITC reader setting. If you to use **Automatic VITC Detect**, the disk recorder uses the range set in the **From** and **To** lines to look for the VITC signals. If Automatic VITC detect is not used, the disk recorder expects to find the VITC signals on the VITC Reader Line 1 (default 10) or Line 2 (default 40). If the signal is found, the **VITC Present** indicator is turned on.

   NOTE: Input must be auto timed to use automatic VITC detection.

5. To change **Input Gain Adjustment**, move the slider to the desired value. The range is from 70 percent to 140 percent (3 dB) for the input signal for both 525 and 625. When you click on **Default**, the Input Gain Adjustment resets to the default value (100 percent).

6. If you want video input auto timed, click **Enable Auto-Timing**. Auto-timing determines if the input is synchronized to the reference genlock signal. The disk recorder records time-base corrected video whether or not it is also locked to the reference. If auto-timing is enabled, and the signal was able to be timed into the system, the **Auto Timed** indicator is turned on. For more information on auto timing, see "Auto Timing" on page 47.

7. Click **Enable Dithering** if the incoming signal is 10-bit resolution. This will produce the best quality result. The LSB artifacts on 10-bit video feeds are reduced. There is no effect if the incoming signal is 8-bit.

8. Click **Vertical Blanking** to enable vertical blanking. When enabled, for the 525 standard, lines 1 through 9 and 264 through 272 are blanked; for the 625 standard, lines 1 through 5, 311 through 317, 624, and 625 are blanked.

9. Click an appropriate format under **Select Video Input Format**.

10. Click **Undo** to return the values in the dialog box to their original settings.

11. Click **Close** to accept all inputs.

Serial Digital Component Video Input

You can configure serial digital component video input with the Serial Digital Component Video Input dialog box. The current status indicators, shown at the top of the dialog box, are **Video Present**, **VITC Present**, and **Auto Timed**. The green light indicates that a particular status is on. These indicators cannot be edited.

To configure serial digital component video input:

1. Select **Video Input** on the configuration tree, and then click or double-click a digital component input from the list, such as *SDI-InA-J13*. The Serial Digital Component Video Input dialog box appears (Figure 19).
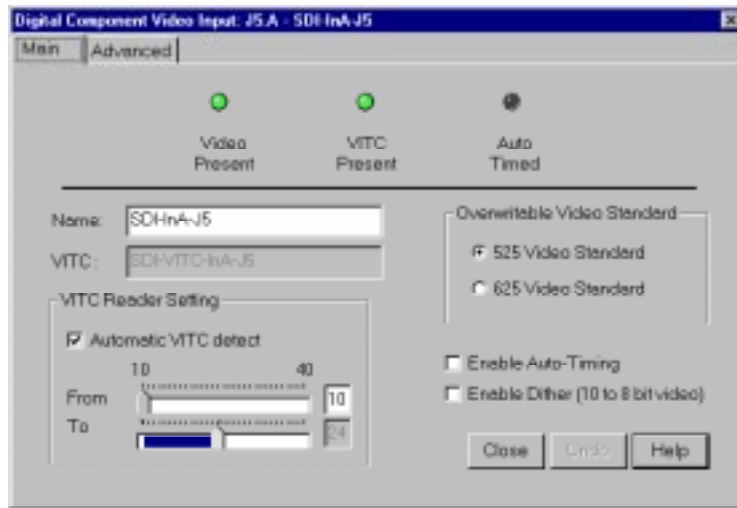
Figure 19. Serial Digital Component Video Input dialog box

2. If you prefer, enter the new signal name in the **Name** box. For example, if *SDI-InA-J13* is a dedicated satellite feed, you could rename it to *Satellite_1*. The VITC name, window title bar name, and the configuration tree name automatically change as you enter the new name. Names can be up to 30 characters, and can include spaces. To return a renamed signal to the default, delete all the characters in the text field, and press Enter.

3. Under **Overwritable Video Standard**, click either **525 Video Standard** or **625 Video Standard**. If you change this standard, you must restart all tools that use this channel. The video input board can serve both standards, but the input can only accept one at a time.

4. Select a VITC reader setting. If you to use **Automatic VITC Detect**, the disk recorder uses the range set in the **From** and **To** lines to look for the VITC signals. If Automatic VITC detect is not used, the disk recorder expects to find the VITC signals on the VITC Reader Line 1 (default 10) or Line 2 (default 12). If the signal is found, the **VITC Present** indicator is turned on. Line 1 and Line 2 cannot be more than 14 lines apart.

   NOTE: Input must be auto timed to use automatic VITC detection.

5. If you want video input auto timed, click **Enable Auto-Timing**. Auto-timing determines if the input is synchronized to the reference genlock signal. The disk recorder records time-base corrected video whether or not it is also locked to the reference. If auto-timing is enabled, and the signal was able to be timed into the system, the **Auto Timed** indicator is turned on. For more information on auto timing, see "Auto Timing" on page 47.

6. Click **Enable Dithering** if the incoming signal is 10-bit resolution. This will produce the best quality result. The LSB artifacts on 10-bit video feeds are reduced. There is no effect if the incoming signal is 8-bit.

7. Click **Undo** to return the values in the dialog box to their original settings.

8. Click **Close** to accept all inputs.

Serial Digital Component Video Input Advanced

The Advanced tab allows you to determine whether the EDH (Error Detection and Handling) packet is present, which audio groups (1–4) are present, and which errors are present: Full Field (FF) CRC or Active Picture (AP) CRC, plus parity and checksum errors.

To reset EDH for serial digital video input:

1. Click the **Advanced** tab to view the Serial Digital Component Video Input Advanced settings.
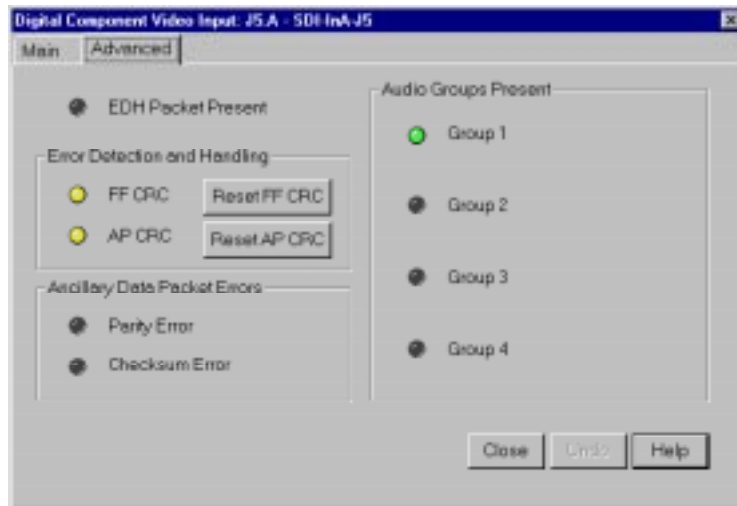
Figure 20. Serial Digital Component Video Input, Advanced

2. Click **Reset FF CRC** to reset Full Field errors or **Reset AP CRC** to reset Active Picture errors.

3. Click **Undo** to undo the resets.

4. Click **Close** to exit.

Video Output

You can configure either analog composite or serial digital component video output on your Profile system, depending on which boards are installed.

Analog Composite Video Output

To open the Analog Composite Video Output dialog box:

1. Select **Video Output** from the configuration tree and click or double-click an analog composite output from the list, such as *Composite-OutA-J11*. The Analog Composite Video Output dialog box appears (see Figure 21).
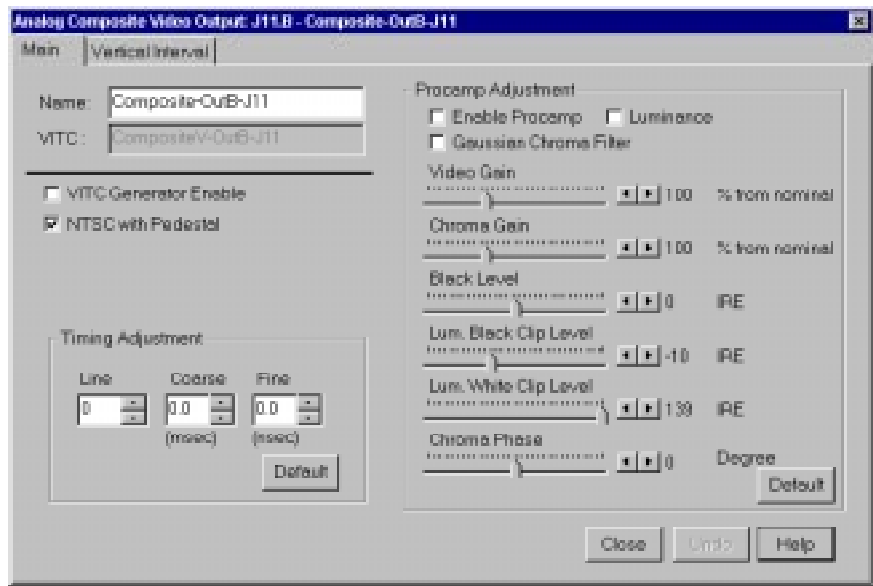
Figure 21. Analog Composite Video Output dialog box

2. Enter a new name in the **Name** box to change the signal name. For example, if this is a dedicated signal to a main switcher, rename it *Switcher_1*. The **VITC Name** automatically tracks the signal name and cannot be edited. Names can be up to 30 characters, and can include spaces. To return a renamed signal to the default, delete all the characters in the text field, and press Enter.

3. Click **VITC Generator Enable** to place VITC on specified lines in the vertical interval, as specified under **VITC Generator Settings** in analog composite video input.

4. Click **NTSC with Pedestal** to set the video output to NTSC with pedestal.

5. Under **Timing Adjustment**, you can adjust the timing of the output signal to compensate for any additional delays in your system. Any changes you make in this group take place immediately. You can delay at the following levels, to get the exact amount of delay required:

   - Vertical Line level (from –2 to +148 lines)

   - Coarse Horizontal level (from –100 to +100 ms)

   - Fine Horizontal level (from –100 to +100 ms)

   Use the **Line**, **Course**, or **Fine** boxes to set the timing adjustment amounts. When the timing adjustments are done with a waveform monitor, you can visually move the signal so that it matches the reference. Click **Default** to reset the values to 0, which is the point where the output signal timing is aligned with the reference genlock signal.

6. Under **Procamp Adjustment**, you can modify the output signal to compensate for any irregularities in the signal path. All changes take place immediately.

   - **Enable Procamp** must be checked before anything in this group can be adjusted. This enables you to setup the Procamp and then disable it without losing the setup.

   - **Luminance**(enabled) specifies only the luminance portion of the signal is output. The signal is black and white.

   - **Gaussian Chroma Filter** determines the type of filter used on the chrominance portion of the signal. If the Gaussian Chroma Filter is selected, the filter has a long slow roll-off to prevent ringing. If it is not selected, then a brickwall filter is used. Although this may introduce ringing into the signal, it maintains the integrity of the signal for multiple processing. Use the Gaussian Filter as a last step before transmission and if ringing suppression is required. Do not use this filter if you are doing multiple processes/passes on the signal or if the material is in component form.

The Procamp controls are adjusted with either the slider bars or arrow buttons. The corresponding numeric values are displayed in the text boxes.

- **Video Gain** raises or lowers the overall amplitude of the video signal. It has a range of 50 to 200 percent of nominal.

- **Chroma Gain** changes the amplitude of the chrominance portion of the signal to change the color intensity. It has a range of 50 to 200 percent of nominal.

- **Black Level** sets the voltage level of the reference black level. This is expressed in mV in the PAL video standard and in IRE units in NTSC. The range in the PAL standard is –140 to 140 mV. The range in the NTSC standard is –20 to +20 IRE.

- **Chroma Phase** sets the colors by varying the phase of the chrominance subcarrier. The range is –45 to +45.

- **Luminance Black Clip Level** is the point where the procamp clips the luminance portion of any video that drops below this level. For PAL, the range is –150 mV to 0 mV and –20 IRE to 7.5 IRE (or 0 IRE if pedestal is not selected) in the NTSC standard.

- **Luminance White Clip Level** follows the same logic, only it clips any luminance above the set threshold. Its range in the PAL standard is 700 to 909.5 mV and 100 to 139.5 IRE in the NTSC standard.

- **Default Procamp** resets the Procamp to the factory-defined levels.

7. Click **Undo** to return the values in the dialog box to their original settings.

8. Click **Close** to accept the changes.

Analog Composite Video Output Vertical Interval

The Vertical Interval tab brings up the analog composite video output vertical interval controls that determine how the vertical interval signals are handled:

1. Click the **Vertical Interval** tab to view the vertical interval controls. The vertical interval line numbers change depending on the selected video standard (see Figure 22).
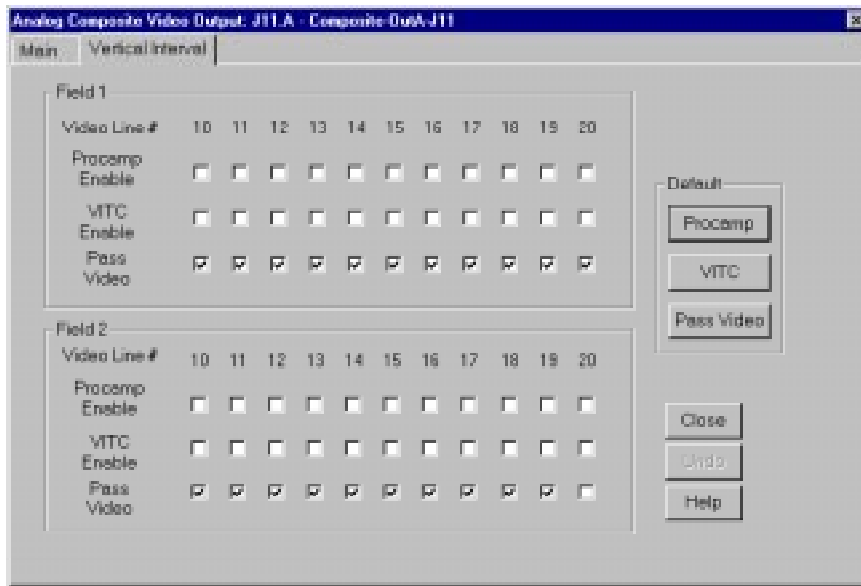
Figure 22. Analog Composite Video Input Vertical Interval tab

2. Click in the boxes for each line to enable Procamp (the settings are the same as the regular video), VITC (if VITC Generator Enable is selected), or to Pass Video through. All or none of the options can be selected for each line. The default buttons for Procamp, VITC, and Pass Video reset these specified values back to the factory presets.

   NOTE If the Pass Video box is not checked, the input video is replaced with black. Do not check Pass Video for VITC lines as Pass Video overrides VITC insertion.

3. Click **Undo** to return the values in the dialog box to their original settings.

4. Click **Close** to accept the changes.

Analog Composite Monitor Output

To open the Analog Composite Monitor Output dialog box:

1. Select **Video Output** from the configuration tree, and then click or double-click a monitor output from the list, such as *Monitor-Out-J12*. The Analog Composite Monitor Output dialog box appears (see Figure 23).
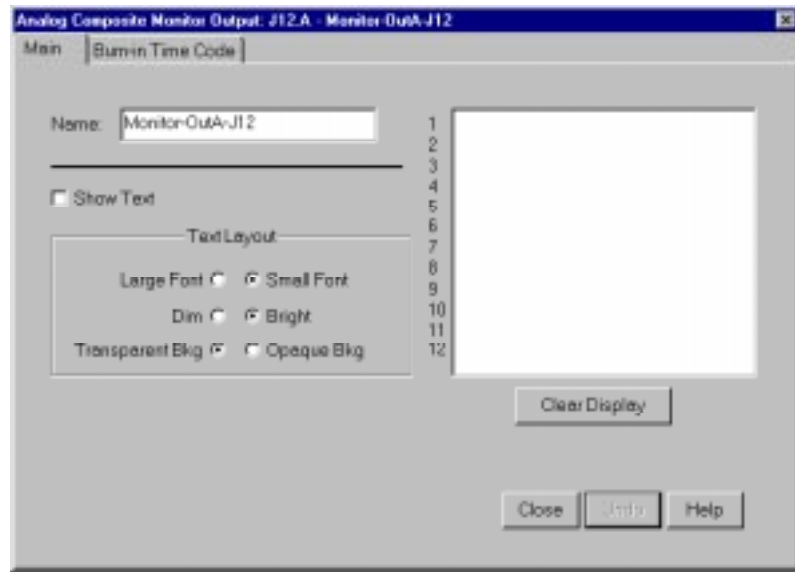
Figure 23. Analog Composite Monitor Output dialog box, Main tab

2. Enter a new name in the **Name** box to change the signal name. For example, you could rename it to *Monitor_1*. Names can be up to 30 characters, and can include spaces. To return a renamed signal to the default, delete all the characters in the text field, and press Enter.

3. Click **Show Text** to display text on an attached monitor. Displaying text on a monitor is good way to help identify where the output is coming from.

4. Under **Text Layout**, you can select either a small or large font, a dim or bright white character display, and a transparent or opaque background for the lettering. With the small font, you get twelve lines and twenty-four columns; with the large, you get six lines and thirteen columns.

5. To enter text, click in the text entry box and start typing where you want the text displayed on the monitor. Legal characters are: a-z A-Z 0-9 / ! ? + - = ( ) < > ' " . , . Use _ (underbar) for transparent space.

6. To clear entire monitor, click **Clear Display**. Click the button again to display text once more. Under Windows NT 3.51, this button appears as a check box.

7. Click **Undo** to return the values in the dialog box to their original settings.

8. Click **Close** to accept the changes.

Analog Composite Monitor Output Burn-in Timecode

To display burn-in timecode:

1. Click the Burn-in Timecode tab to bring up the controls for displaying burn-in timecode on the monitor (see Figure 24).
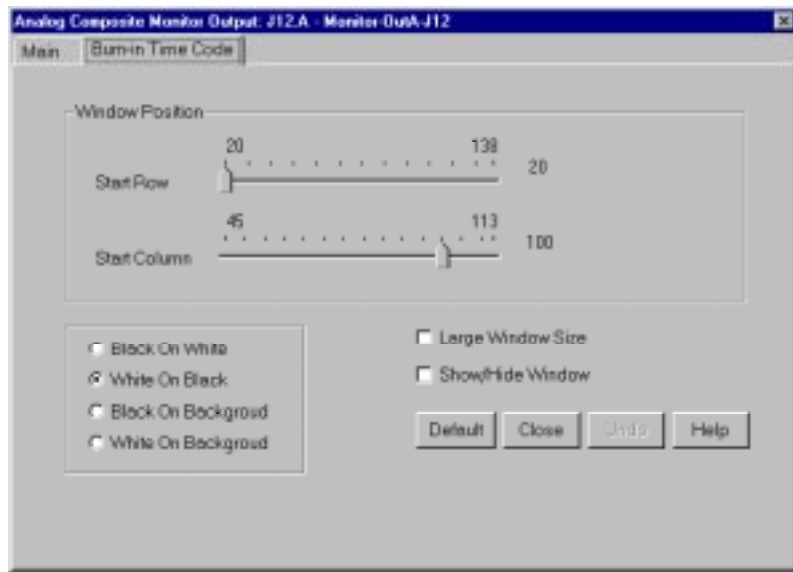
Figure 24. Analog Composite Monitor Output dialog box, Burn-in Timecode tab

2. To display timecode on an attached monitor, select **Show/Hide Window**.

3. To display a large timecode window, select **Large Window Size**.

4. Under **Window Position**, select the **Start Row** and **Start Column** for the timecode with the sliders. This determines where the timecode is displayed on the monitor screen. The current row and column are displayed on the right.

5. You can display the timecode in one of four formats. Click on **Black on White**, **White on Black**, **Black on Background**, or **White on Background**.

6. Click **Undo** to return the values in the dialog box to their original settings.

7. Click **Close** to accept the changes.

Serial Digital Component Video Output

To open the Serial Digital Component Video Output dialog box:

1. Select **Video Output** from the configuration tree, and then click or double-click a digital component output from the list, such as *SDI-OutA-J5*. The Serial Digital Component Video Output dialog box appears (see Figure 25).
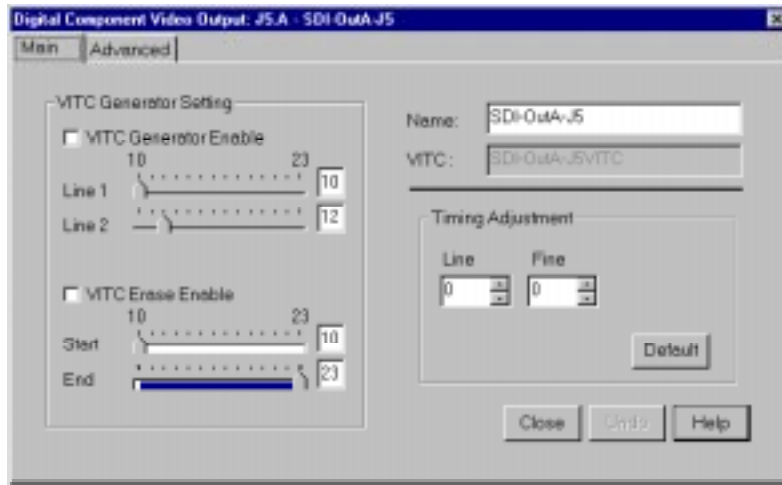
Figure 25. Serial Digital Component Video Output dialog box

2. Enter a new name in the **Name** box to change the signal name. For example, if the signal named *SDI-OutA-J13* is a dedicated signal to a main switcher, you could rename it to *Switcher_1*. The VITC name automatically tracks the signal name. Names can be up to 30 characters, and can include spaces. To return a renamed signal to the default, delete all the characters in the text field, and press Enter.

3. Under **VITC Generator Setting**, you can place VITC (vertical interval timecode) on specified lines and/or erase lines in the vertical interval.

   - If VITC Generator Enable is selected, VITC is placed on the lines given in VITC Generator Line 1 and 2. If you only want one line, use the same number for both.

- If **VITC Erase Enable** is selected, it removes any VITC that may have been recorded previously. Without enabling VITC erase, previous VITC may or may not be overwritten, so it is best to enable it. The range of lines is determined by the Start and End values.

4. Under **Timing Adjustment** you can set the timing of each output with respect to the reference genlock internal reference timing which, in turn, is set with respect to the external reference input (house black). With the reference genlock timing set to the factory default of 0, the outputs have an adjustment range of –2.5 lines to +148 lines of delay. The **Fine** delay is in pixels and the **Line** delay is in lines.

5. Click **Undo** to return the values in the dialog box to their original settings.

6. Click **Close** to accept the changes.

Serial Digital Component Video Output Advanced

To change error detection settings for serial digital video output:

1. Click the **Advanced** tab to view the Serial Digital Component Video Output Advanced settings (see Figure 26).
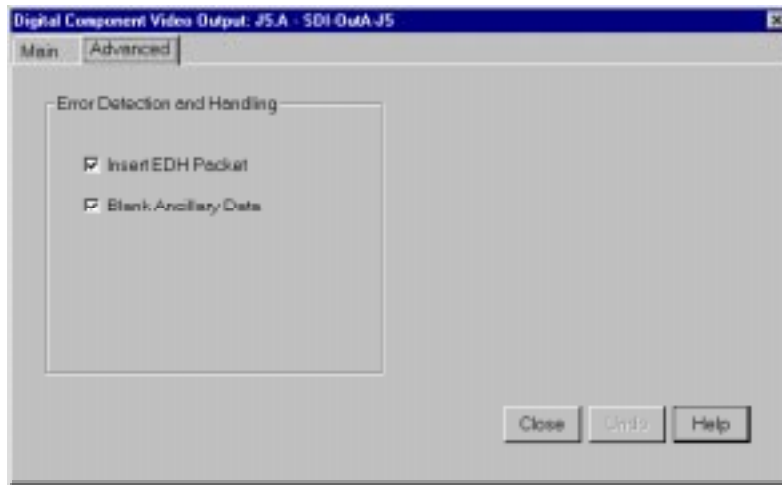
Figure 26. Serial Digital Video Output dialog box, Advanced tab

2. Click **Insert EDH Packets** to insert Full Frame CRC and Active Picture CRC into the video stream.

3. Click **Blank Ancillary Data** to insert ancillary data information into the video stream.

4. Click **Undo** to return the values in the dialog box to their original settings.

5. Click **Close** to accept the changes.

PDR 100 Audio

The PDR 100 supports both analog and serial digital embedded (625 only) audio inputs and outputs, depending on which boards are installed your the PDR 100 system. Audio in the PDR 100 is routed using the EISA bus with data flow controlled by a real time controller and the audio interface card.

The analog audio card is capable of converting four channels of analog audio to digital audio (and vice versa) using 16-bit/48kHz conversion. The input and output data flow to the card via the EISA bus, with sample clocks coming from a video interface card, such as the analog composite board or the SDI board. However, the analog audio card can only have one clock operating at a time. If the card is used as an input device, it must have the clock that originates on the video board associated with the audio.

Analog Audio Input

To open the Analog Audio Input dialog box:

1. Select **Audio Input** from the configuration tree, and then click or double-
   click an analog audio name from the list, such as *Analog-InA-J8*. The dialog
   box appears, as shown in Figure 27.
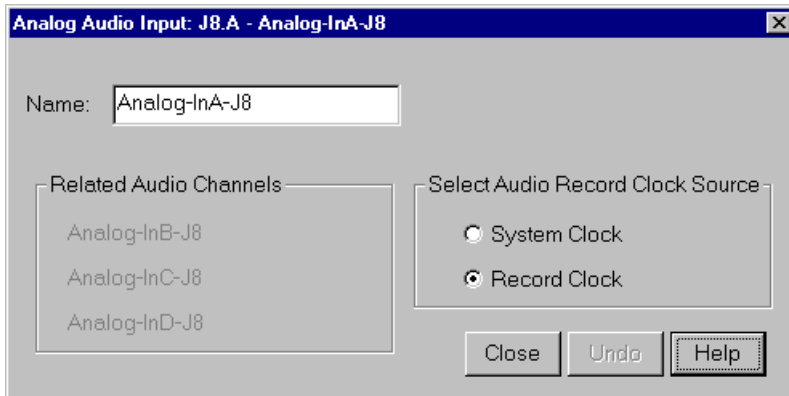
Figure 27. Analog Audio Input dialog box

2. Enter a new name in the **Name** box. For example, you could change the
   signal name from *Analog-InA-J8* to *Audio One*. Signal names can be up to
   30 characters long, and can include spaces. The window title bar name and
   the configuration tree name automatically change as you enter the new name.
   To return a renamed signal to the default, delete all the characters in the text
   field, and press Enter.

3. Click **System Clock** or **Record Clock** to select the audio record clock
   source.

4. **Related Audio Channels** lists the audio channels that are related to the
   current signal name.

5. Click **Undo** to return the values in the dialog box as they were set at the time
   the dialog box appeared.

6. Click **Close** to accept the changes.

Digital Audio Input

To open the Digital Audio Input dialog box:

1. Select **Audio Input** from the configuration tree, and then click or double-click a digital audio name from the list, and the Digital Audio Input dialog box appears (see Figure 28).
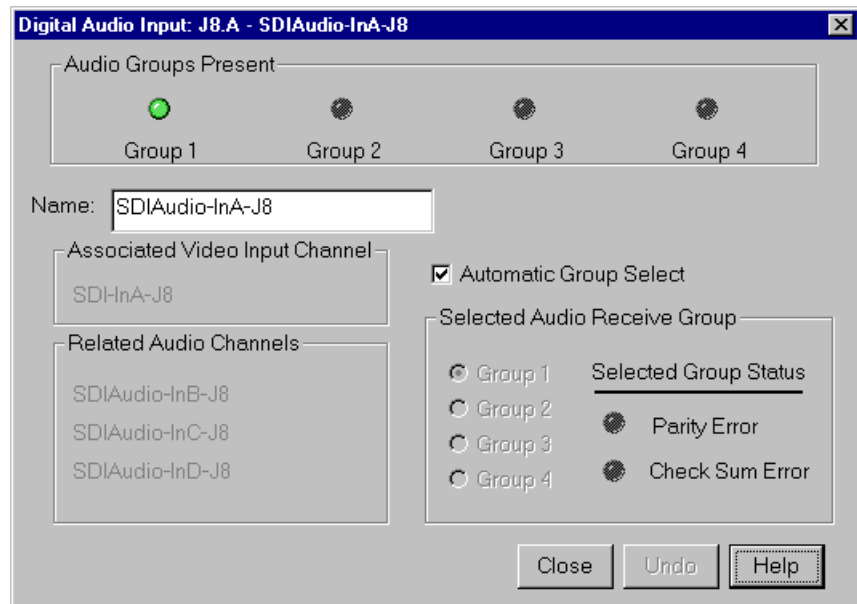
Figure 28. Digital Audio Input dialog box

2. **Audio Groups Present** shows four status indicators, one per audio group. The green light indicates that the particular status is on. These indicators cannot be edited.

3. Enter a new name in the **Name** box to change the signal name—*Audio_1*, for example. Names can be up to 30 characters, and can include spaces. The window title bar name and the configuration tree name automatically change as you enter the new name. To return a renamed signal to the default, delete all the characters in the text field, and press Enter.

4. **Associated Video Input Channel** lists the name of the digital component video input channel associated with the audio signal.

5. **Related Audio Channels** lists the audio channels that are related to the signal name.

6. Select an audio group. You can either click **Automatic Group Select** or click the button associated with the group (1–4) in the **Selected Audio Receive Group**.

7. **Selected Group Status** represents parity error and check sum error with a status indicator for each. The green light indicates an error condition. These indicators cannot be edited.

8. Click **Undo** to return the values in the dialog box as they were set at the time the dialog box appeared.

9. Click **Close** to accept the changes.

Analog Audio Output

To change the analog audio output signal name:

1. Select **Audio Output** from the configuration tree, and then click or double-click an analog audio name from the list.
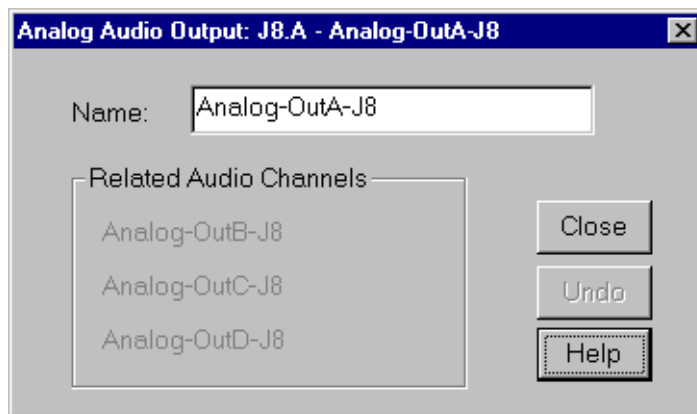
Figure 29. Analog Audio Output dialog box

2. Enter a new name in the **Name** box to change the signal name—
Audio_Out_1, for example. Names can be up to 30 characters, and can include spaces. The window title bar name and the configuration tree name automatically change as you enter the new name. To return a renamed signal to the default, delete all the characters in the text field, and press Enter.

3. **Related Audio Channels** lists the audio channels that are related to the signal name.

4. Click **Undo** to return the signal name to its original name.

5. Click **Close**.

Digital Audio Output

To change the digital audio signal name and transmit group:

1. Select **Audio Output** from the configuration tree, and then click or double-click a digital audio name from the list.
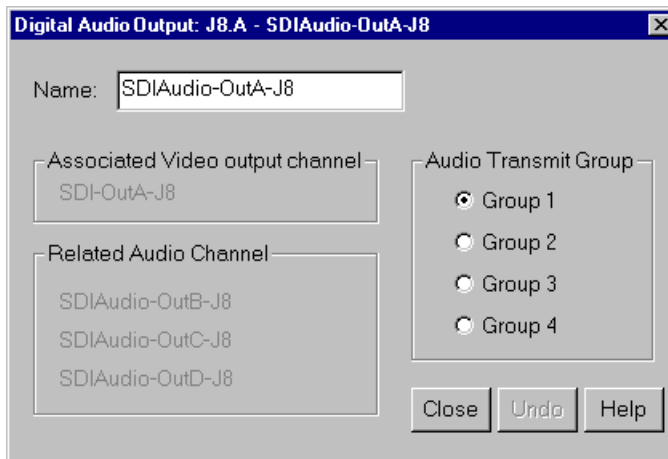
Figure 30. Digital Audio Output dialog box

2. Enter a new signal name in the **Name** box—*Audio_Out_1*, for example. Names can be up to 30 characters, and can include spaces. The window title bar name and the configuration tree name automatically change as you enter the new name. To return a renamed signal to the default, delete all the characters in the text field, and press Enter.

3. Click a group name (1–4) under **Audio Transmit Group** to change the audio transmit.

4. **Associate Video Output Channel** lists the name of the associated video output channel.

5. **Related Audio Channels** lists the audio channels that are related to the signal name.

6. Click **Undo** to return the signal name to its original name.

7. Click **Close**.

PDR 200 Audio

The PDR 200 audio architecture accepts and simultaneouly processes sixteen audio inputs and outputs at up to four simultaneous clock rates. Internally, all audio is processed in floating point at 48kHz with a selectable storage resolution of 16 or 20 bits. Inputs may be individually clocked in groups of four, and any clock group may be referenced to the system reference (house black) or any one of four video inputs. Output clocking is synchronous to system reference. Sample rate conversion is available for all inputs (30 to 50kHz), providing uniform storage at 48kHz.

The PDR 200 can be configured to operate with analog, AES/EBU digital, or embedded (SMPTE 272M Level A) audio, depending on which options are installed in your system. All three audio formats are supported without external conversion equipment. Analog audio is only available with an optional PAC 208 or PAC 216 Analog/Digital Interface chassis. You can expand the number of XLR or BNC connectors for AES/EBU audio with an optional XLR 216 or BNC 216 Digital Interface chassis. You can choose an audio format for each video channel. For example, you could enable analog audio on one channel, embedded audio on another, and AES/EBU on the rest.

NOTE: Do not turn off sample rate conversion or use AES/EBU as a reference unless you are certain that all inputs and outputs are synchronous.

Analog Audio Input

In analog audio input, you can change audio channel names, check the channel overload status, or adjust line levels in decibels. Click **Undo** to cancel changes, or click **Help** for context-sensitive Help. To configure analog audio input:

1. Expand **Audio Input**, and then click one of the Analog Channels. The Analog Audio Input dialog box appears (Figure 31). The channel numbers on the left refer to the physical input connectors on the audio input box. **Ch. 01** refers to the first connector, and **Ch. 02** refers to the second connector, and so forth.
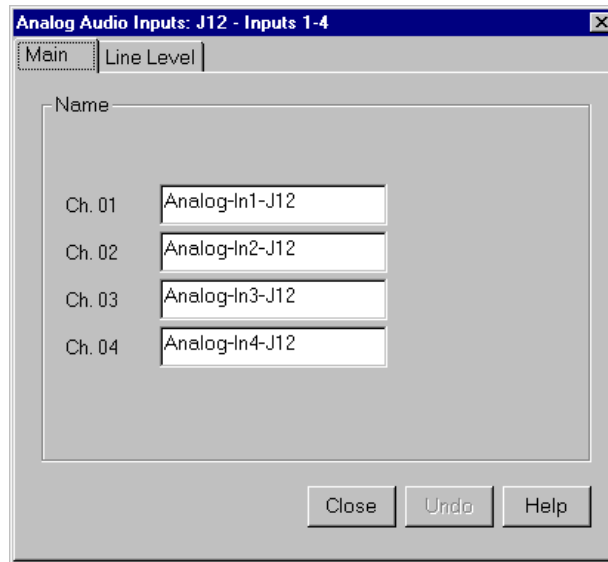
Figure 31. Analog Audio Input dialog box, Main tab

2. Click the Main tab, if it is not already visible.

3. Click in the box of the input channel whose name you want to change. A channel name can have up to 30 characters.

4. After you have changed the channel names, click **Close** or another tab.

To trim the line level or view overload status:

1. In the Analog Audio Input dialog box, click the Line Level tab (Figure 32).
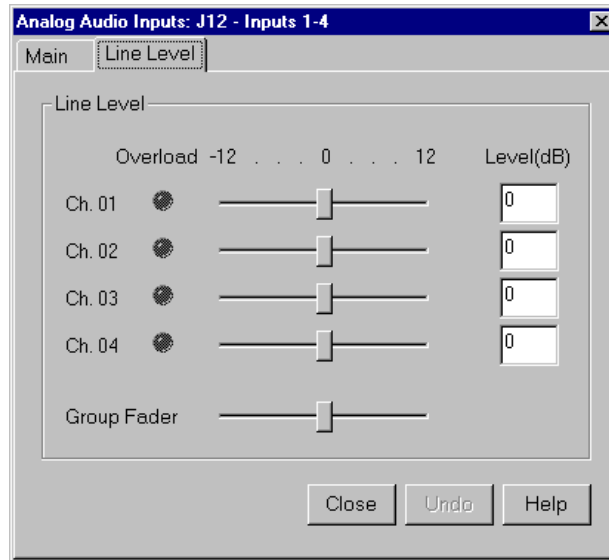
Figure 32. Analog Audio Input dialog box, Line Level tab

2. The line level range is –12 to +12 dB. If you trim the line level for an individual channel with the slider handle, the line level is incremented by 1 dB; clicking on either side of the slider handle increments the line level by 0.5 dB. The Level boxes show the current line level. If you enter a number directly into a Level box, the line level number is rounded to the nearest ±0.5 dB.

3. To adjust the trim for all channels at once, use the **Group Fader** slider. While the **Group Fader** moves all channels at once, it maintains the individual channel differences.

4. If a channel is overloaded, the Overload indicator is on. This means that the incoming audio is clipping.

5. After you have adjusted the line levels, click **Close** or another tab.

Digital Audio Input

In digital audio input, you can change channel names, check the status of channel errors, and change the setting of the sample rate converter. Click **Undo** if you want to cancel any changes, or click **Help** for context-sensitive Help.

To configure digital audio input:

1. Expand Audio Input, and then click one of the Digital Channels to bring up the Digital Audio Input dialog box (Figure 33). The channel numbers on the left refer to the physical input connectors on the audio input box. **Ch. 01** and **Ch. 02** refer to the channel pair on the first connector, and **Ch. 03** and **Ch. 04** refer to the pair on the second connector, and so forth.
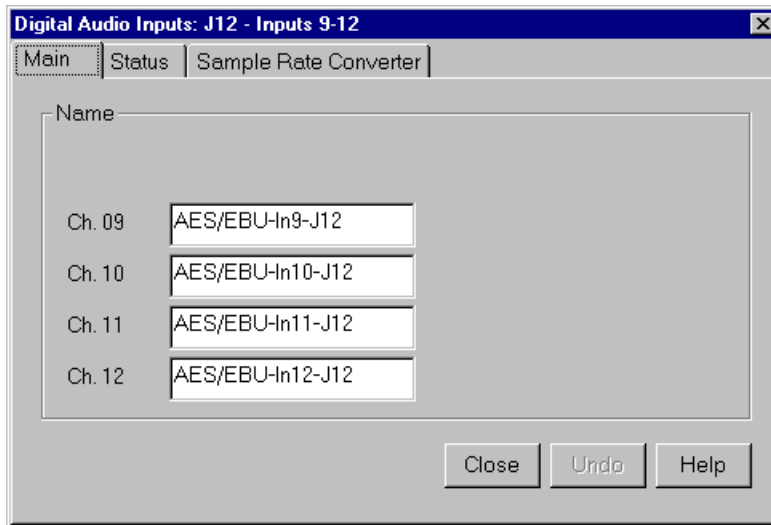
Figure 33. Digital Audio Input dialog box, Main tab

2. Click the Main tab, if it is not already visible.

3. Click in the box of the input channel whose name you want to change. A channel name can have up to 30 characters.

4. After you have changed the channel name or names, click **Close** or another tab.

To check the status of digital input channels:

1. In the Digital Audio Input dialog box, click the Status tab. Under Status Indicators, you see the error status of each channel. If a channel has an error, the indicator is on. See Table 2 for a description of each error indicator.
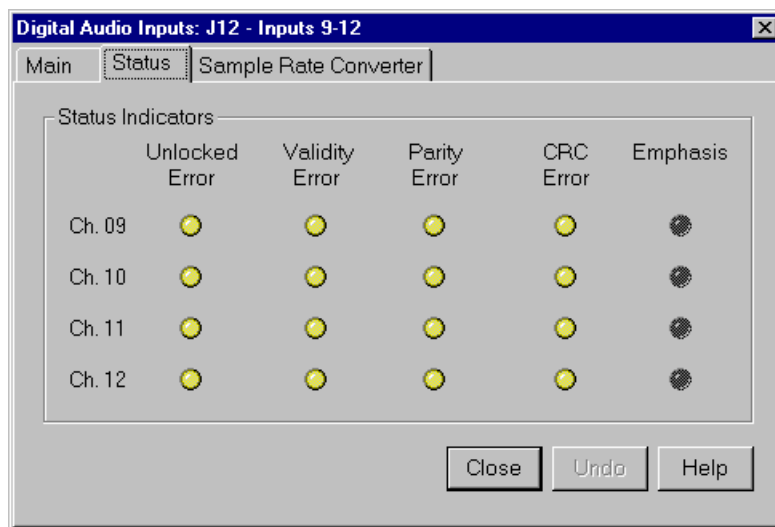
Figure 34. Digital Audio Input dialog box, Status tab

2. When you are done checking for errors, click **Close** or another tab.

Table 2. Digital audio input channel indicators

Indicator	Description
Unlocked Error	Receiver unlocked
Validity Error	AES receiver validity
Parity Error	Parity error
CRC Error	CRC subframe errors
Emphasis	Detected emphasis

If you want to bypass the sample rate converter:

1. In the Digital Audio Input dialog box, click the Sample Rate Converter tab (Figure 35). By default, the sample rate converter is enabled. The sample rate converter affects all four channel inputs.
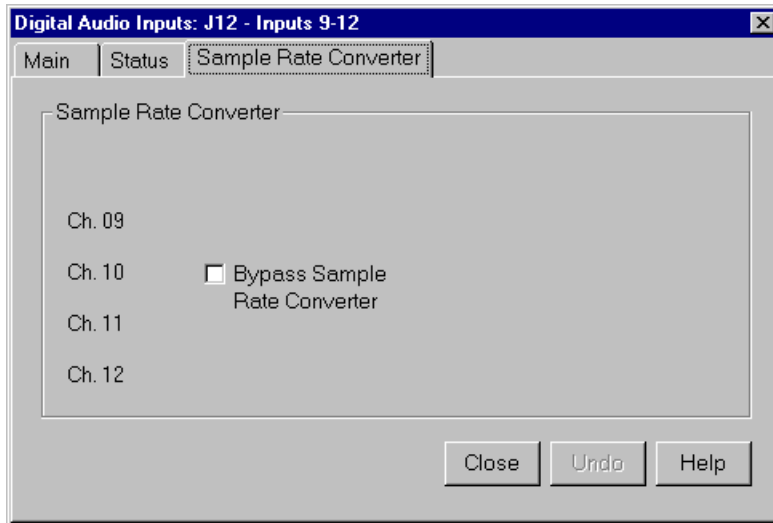
Figure 35. Digital Audio Input dialog box, Sample Rate Converter tab

2. Click **Bypass Sample Rate Converter**.

   NOTE: Do not bypass sample rate conversion unless you are certain that all inputs and outputs are synchronous.

3. After you have disabled the sample rate converter, click **Close** or another tab.

Analog Audio Output

In analog audio output, you can change audio channel names, change line modes for XLR connectors, or adjust individual or group line levels in decibels. Click **Undo** if you want to cancel any changes, or click **Help** for context-sensitive Help.

To configure analog audio output:

1. Expand **Audio Output**, and then click one of the Analog Channels to bring up the Analog Audio Output dialog box. The channel numbers on the left refer to the physical output connectors on the audio output box. **Ch. 01** refers to the first connector, and **Ch. 02** refers to the second connector, and so forth.
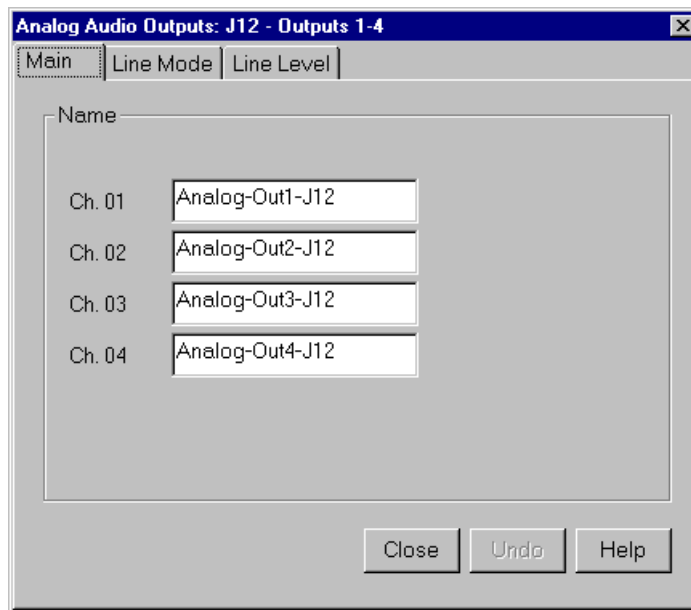
Figure 36. Analog Audio Output dialog box, Main tab

2. Click the Main tab, if it is not already visible.

3. Click in the box of the output channel whose name you want to change. A channel name can have up to 30 characters.

4. After you have changed channel name(s), click **Close** or another tab.

To change line modes for the XLR connectors:

1. In the Analog Audio Output dialog box, click the Line Mode tab (Figure 37).
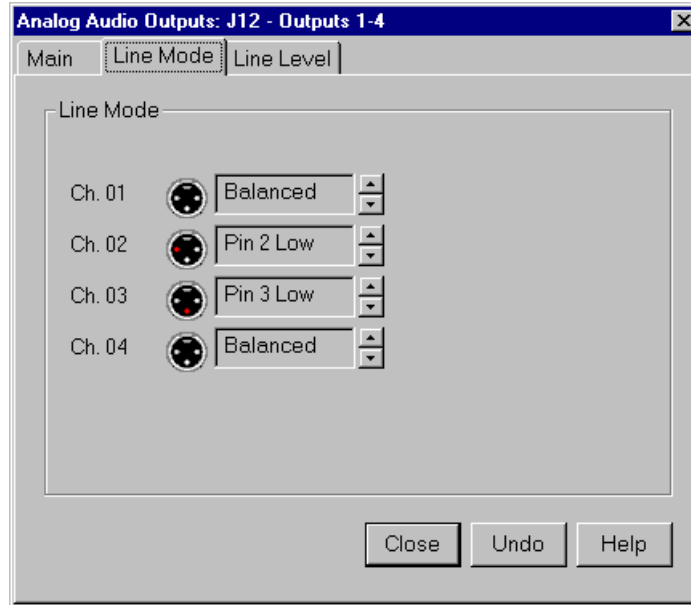
Figure 37. Analog Audio Output dialog box, Line Mode tab

2. In the Line Mode box, you have three options: Balanced (default), unbalanced Pin 2 Low, or unbalanced Pin 3 Low. The illustrations of the XLR connectors to the left of the box give visual cues of the selected mode.

3. After choosing a line mode or modes, click **Close** or another tab.

To trim the line level:

1. In the Analog Audio Output dialog box, click the Line Level tab (Figure 38).
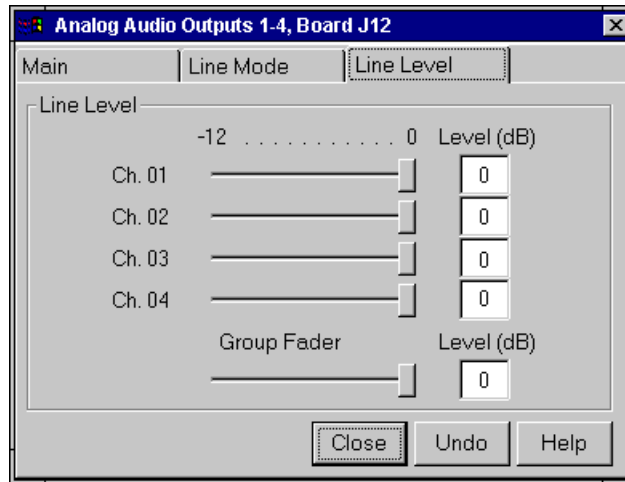
Figure 38. Analog Audio Outputs dialog box, Line Level tab

2. The line level range is –12 to 0 dB. If you trim the line level for an individual channel with the slider handle, the line level is incremented or decremented by 1 dB; clicking on either side of the slider handle changes the line level by 0.5 dB. The Level boxes show the current line level. If you enter a number directly into a Level box, the line level number is rounded to the nearest 0.5 dB.

3. To adjust the trim for all channels at once, use the **Group Fade**r slider. While the **Group Fader** moves all channels at once, it maintains the individual channel differences.

4. To mute a channel, click the mute button next to the channel name.

5. After you have adjusted the line levels, click **Close** or another tab.

Digital Audio Output

You can change the names of the digital audio channels. Click **Undo** if you want to cancel any changes. Click **Help** for context-sensitive Help on digital audio output.

To change a channel name:

1. Expand Audio Output, and then click one of the Digital Channels to bring up the Digital Audio Output dialog box (Figure 39). The channel numbers on the left refer to the physical output connectors on the audio output box. **Ch. 01** and **Ch. 02** refer to the channel pair on the first connector, and **Ch. 03** and **Ch. 04** refer to the pair on the second connector, and so forth.
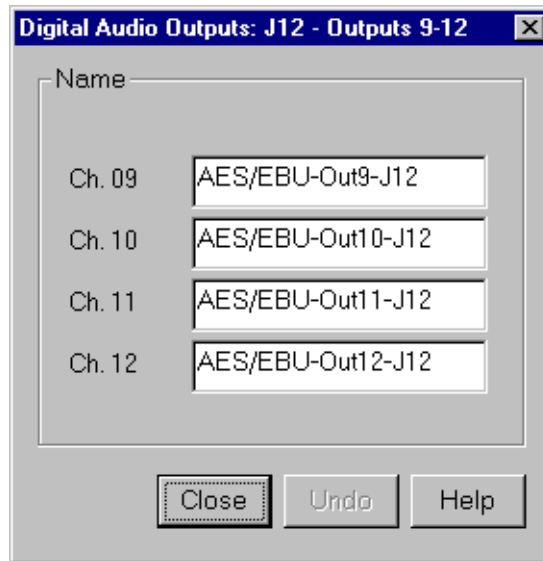
Figure 39. Digital Audio Output dialog box

2. Click in the box of the output channel whose name you want to change. A channel name can have up to 30 characters.

3. After you have changed the channel name or names, click **Close**.

Audio Configuration for the PDR200

The Audio Configuration dialog box shown in Figure 40 allows you to configure input and output channels, input clocking, audio quality and monitor channels.

Input and Output Mapping

The Input Mapping tab is used for mapping input sources to Profile channels, while the Output Mapping tab is used for mapping Profile channels to output destinations. For example, you can map Profile Audio Chassis (PAC) input sources and serial digital audio input sources. Figure 40 and Figure 41 illustrate a sample configuration: a Profile unit with an audio signal processing board, a PAC 208 chassis (with A/D and D/A convertors and connectors for eight channels), and two serial digital cards providing eight analog audio channels, eight digital audio channels, and four video channels with 16 embedded audio channels each.
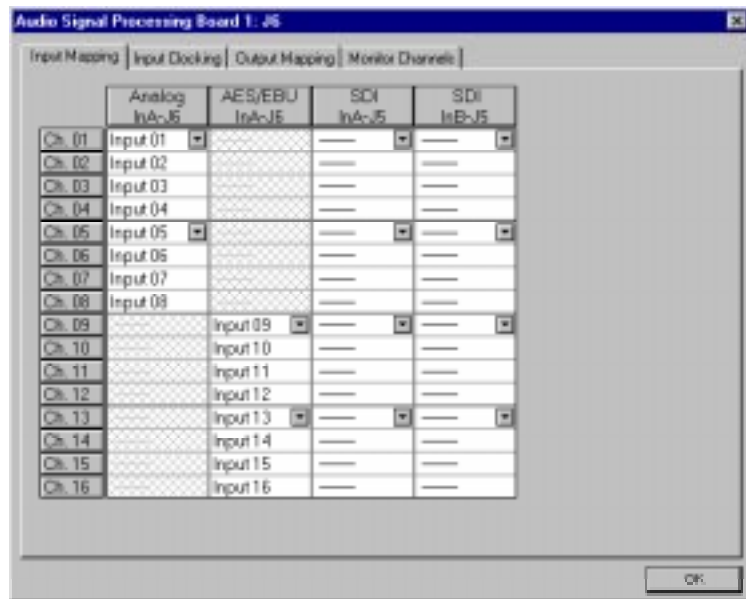
Figure 40. Audio Configuration dialog box, Input Mapping tab
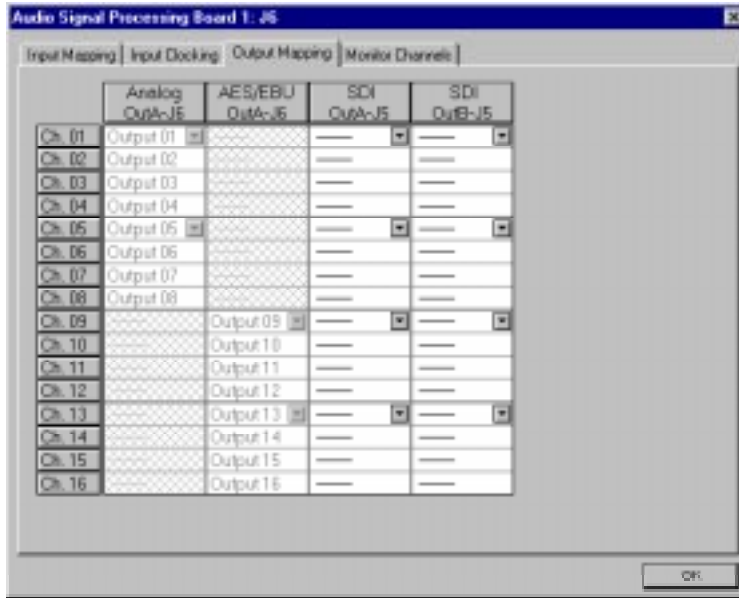
Figure 41. Audio Configuration dialog box, Output Mapping tab

The columns represent the sources to the sixteen channels on the input side and the destinations from the sixteen channels on the output side. The examples in Figure 40 and Figure 41 illustrate the system with a PAC 208 chassis allowing the selection of analog channels 1–8 and digital channels 9–16. A PAC 216 chassis, however, provides sixteen analog inputs and outputs or sixteen digital inputs and outputs. For the PAC 208, rows 9 through 16 of the analog channel column, and rows 1 through 8 of the AES/EBU channel column, are cross-hatched to indicate that these channels are not selectable. In Figure 41, in the column labeled AES/EBU, rows 9–16 appear dimmed, indicating that this audio type is always mapped and cannot be unmapped. Attempting to remap this section results in an error message.

The number of columns in the mapping grid depends on the number of possible input or output audio types that may be mapped to or from the disk recorder channels. The grid is used for selecting which of the possible input or output audio sources and destinations to map to the channels. Audio channels are mapped in groups of four channels only, and the four audio channels are always mapped to consecutive disk channels. For example, analog channels 1–4 (Input 01–Input 04) in the first column of Figure 40 are mapped to the first four disk

recorder channels (Ch. 01–Ch. 04), while digital channels 9–12 (Input 09–Input 12) in Figure 41 are mapped to another four disk recorder channels (Ch. 09– Ch. 12).

In another example, channels 1–4 may be mapped to analog, channels 5–8 mapped to AES/EBU, and so forth. In addition, analog and AES/EBU audio types have an assigned one-to-one mapping to their respective channels, that is, input 1 always maps to channel 1, input 2 to channel 2, and so on.
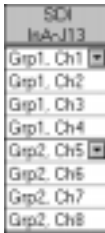
Serial digital embedded audio contains sixteen audio channels grouped into four groups of four channels. Each group can be assigned to any group of four channels. For example, group 1 (Grp1) may be assigned to channels 1–4 (Ch1– Ch4), 5–8 (Ch5–Ch8), 9–12 (Ch9–Ch12), or 13–16 (Ch13–Ch16). However, a maximum of two of the four groups from a serial digital video source may be used simultaneously.

Input Mapping

The Input Mapping tab is used for mapping input channels to Profile disk channels. The channels must be mapped to an audio type (analog, SDI, or AES/EBU) at all times—there is no unmapped state for input mapping. However, channels may only be mapped to one audio type at a time. Analog and AES/EBU channels must always be mapped directly to the same physical channel numbers.

To map input channels:

1. Choose **Option | Audio Configuration Board 1** or **2** or click an ASPB Configuration button. The Audio Configuration dialog box appears (Figure 40).

2. Click the Input Mapping tab.

3. Click on a button in a column. This displays a list containing analog, AES/EBU, or SDI audio groups. Unavailable audio groups appear dimmed.

4. Click on the group of channels you want. Any single group of AES/EBU channels may be mapped to any group of disk channels.

5. Click **OK** to accept your changes or click another tab.

Output Mapping

The Output Mapping tab is used for mapping Profile disk channels to output destinations. If analog or AES/EBU audio types are present, they are always mapped to their associated channels. These audio types cannot be unmapped. Channels may be mapped to multiple audio types, but of these only one can be a serial digital embedded or SDI audio type.

To map output channels:

1. Choose **Option | Audio Configuration Board 1** or **2** or click an ASPB Configuration button. The Audio Configuration dialog box appears (Figure 41).

2. Click the Output Mapping tab.

3. Click on a button in a column. This displays a list containing analog, AES/EBU, or SDI audio groups. Unavailable audio groups appear dimmed.

4. Click on the group of channels you want. The audio channel may be mapped to any of the outputs in groups of four.

5. Click **OK** to accept your changes or click another tab.

Input Clocking

The Input Clocking tab is used for assigning video input clocking sources to input audio channels. The first column on the left side of the dialog box displays the disk recorder channel numbers. The last column shows the audio clock reference source selection (Figure 42).

You get one system reference by default from the Reference Genlock boards, and up to four video input references, depending on which video boards are installed in your Profile unit. Even if more than four video references are available, only the first four input clocking references are used. If you look at the bottom of the Configuration Manager window, you see a graphic representation of the installed boards. A key to the board representations is shown in Table 3.

Table 3. Board representation key

Board Tag	Board Type	No. of Video References
Vid I/O SDI VA	Serial digital component video	2
Vid I CAV	Component analog video	1
Vid I Cmpst	Analog composite video	1

The video references shown in the Input Clocking tab—Video Input 1–4 — correspond to the actual video boards installed, from left to right, as represented at the bottom of the Configuration Manager window.

For example, a system that does not use all four available clock references might be configured like this. In this specific example, shown in Table 4, you have one analog composite board and one component analog board. The panel in the tab shows System, Video Input 1, and Video Input 2.

Table 4. Configuration example, two video input clocking sources

Board Tag	Board Type	Board Reference	Input Clock Reference
Vid I CAV	Component analog video	1	Video Input 1
Vid I Cmpst	Analog composite video	1	Video Input 2

In the next example, a system that uses all four available clock references might be configured with two serial digital component boards. In this specific example, shown in Table 5, the panel in the tab shows System, Video Input 1, Video Input 2, Video Input 3, and Video Input 4.

Table 5. Configuration example, four video input clocking sources

Board Tag	Board Type	Board Reference	Input Clock Reference
Vid I/O SDI VA	Serial digital component	1 and 2	Video Input 1, Video Input 2
Vid I/O SDI VA	Serial digital component	1 and 2	Video Input 3, Video Input 4
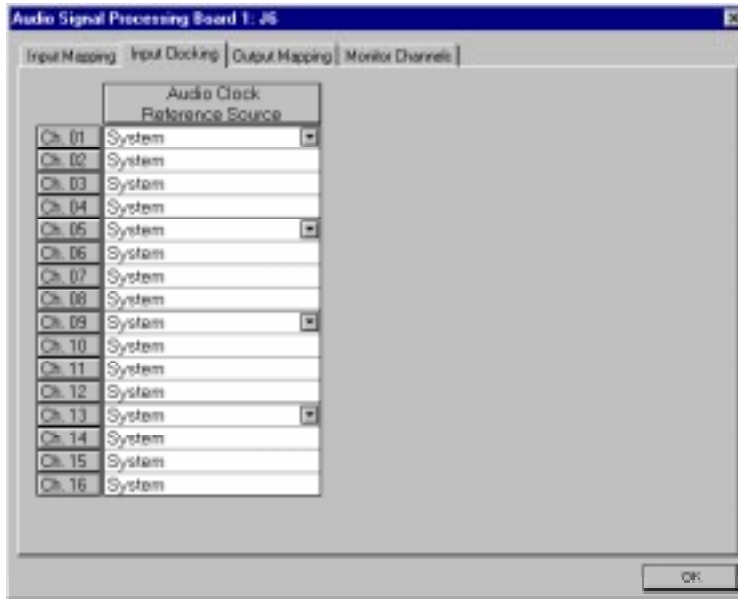
Figure 42. Audio Configuration dialog box, Input Clocking tab

To change the input clocking:

1. Choose **Option | Audio Configuration Board 1** or **2** or click an ASPB Configuration button**.** The Audio Configuration dialog box appears. Click the Input Clocking tab, if it isn't already displayed.

2. Click the button in the Audio Clock Reference Source column for the desired channels and select one of up to five choices: System (default) or Video Input. (The number of video inputs depends on the number of available video channels.) Selecting one of the video inputs sets the group of four channels to use the selected input as their audio clocking source.

3. Click **OK** to accept your changes or click another tab.

Audio Configuration Monitor Channels Tab

Under the Monitor Channels tab, you can select recording and playback quality and adjust monitor channels.

1. Choose **Option | Audio Configuration Board 1** or **2** or click an ASPB Configuration button. The Audio Configuration dialog box appears (Figure 43).
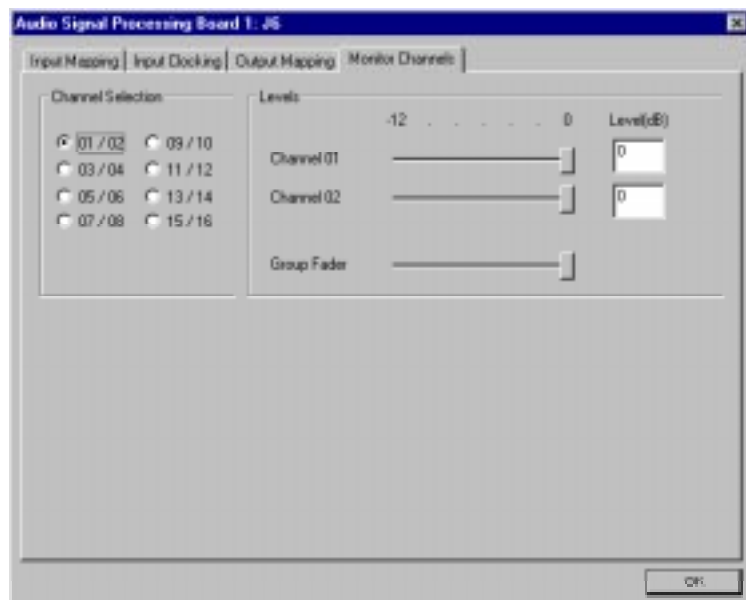
Figure 43. Audio Configuration dialog box, Monitor Channels tab

2. Click the Monitor Channels tab.

3. Under Monitor Channels, the Channel Selection box allows you to select which channels you want to monitor. Click next to a channel pair to select them. You can now adjust line levels for the pair.

4. The line level range is –12 to +0 dB. If you trim the line level for an individual channel with the slider handle, the line level is incremented by 1 dB; clicking on either side of the slider handle increments the line level by 0.5 dB. The **Level** boxes show the current line level. If you enter a number directly into a **Level** box, the line level number is rounded to the nearest ±0.5 dB.

5. To adjust the trim for all channels at once, use the **Group Fader** slider. While the **Group Fader** moves all channels at once, it maintains the individual channel differences.

   NOTE: If the audio interface box is not present, the Monitor group will not appear. If your system is configured with an XLR 216 digital-only chassis, channel selection is the only option available in the Monitor Channels group.

6. Click **OK** to accept your changes or click another tab.

System Audio Configuration

To set recording and playback quality, or audio scrubbing:

1. Choose **Option | Audio Configuration** or click the System Audio Configuration button. The System Audio Configuration dialog box appears (Figure 44).
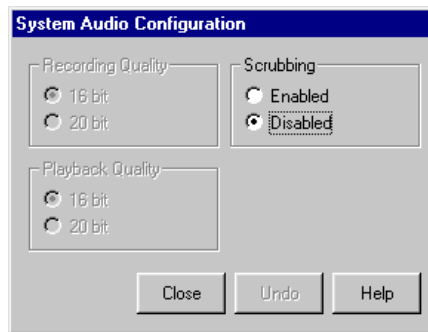
Figure 44. System Audio Configuration dialog box

2. By default, recording and playback are set to 16-bit quality. To change the audio quality, click the 20-bit button for either recording, playback or both. Audio is played back at its recorded resolution, even if the system is configured for 20-bit playback quality. If 16-bit quality is enabled, all audio will be played back at 16-bit, regardless of what quality it was recorded in.

3. Click **Enabled** under **Scrubbing** to turn audio scrubbing on, and click **Disabled** to turn it off. **Disabled** is the default.

4. Click **Undo** to return the settings in the dialog box

5. Click **Close** when finished.
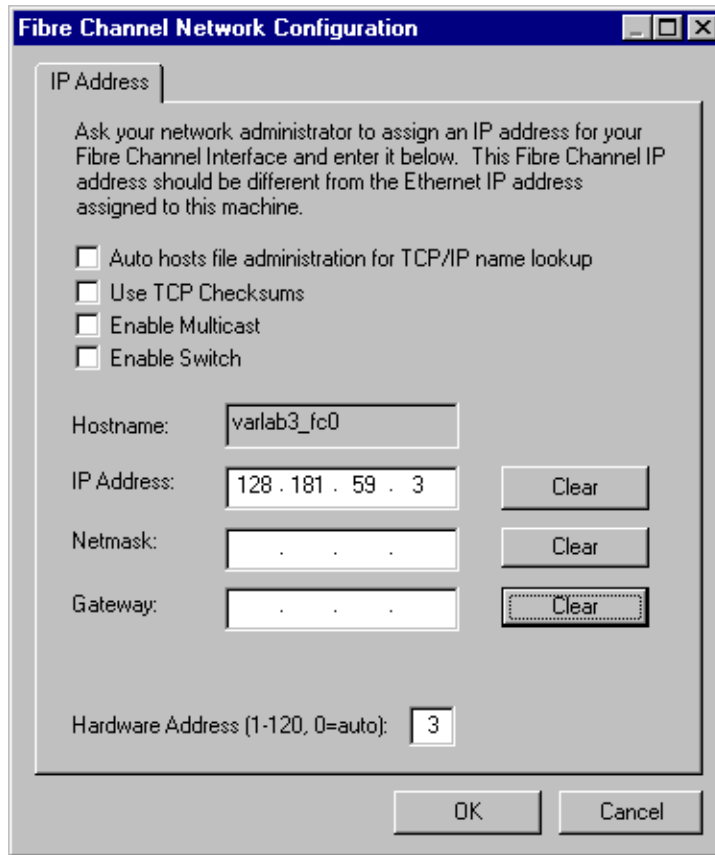
Setting Up Fibre Channel Networking

If you have a Fibre Channel board in your Profile unit and you are part of a
Fibre Channel Profile network, you must configure the board with an IP
(Internet Protocol) address and other optional settings. Configuration Manager
allows you to do this with the Fibre Channel Networking command.

To configure your Fibre Channel board:

1. Choose **Option | Fibre Channel Networking** or click the **Fibre Channel
   Networking** button on the toolbar. The Fibre Channel dialog box appears
   (see Figure 45).

Figure 45. Fibre Channel Network Configuration dialog box

2. Click **Auto hosts administration for TCP/IP name lookup**. When selected, the PDR Network Configuration Service (**fcncs.exe**) automatically administers the file *c:\winnt\system32\drivers\etc\hosts*.

3. Click **Use TCP Checksum**. When selected, a checksum is used to aid in error checking.

4. Click **Enable Multicast** if the Fibre Channel Multicast option is installed and you want to enable it. This checkbox is dimmed if the option is not installed. Disabling the option even though it is installed can be done to avoid unintentional file transfers or the need to manage the feature if it is not in use.

5. Click **Enable Switch** to enable the Fibre Channel driver to communicate with Fibre Channel switches. This box should be checked if your Profile unit is directly connected to a Fibre Channel switch (fabric).

6. The **Hostname** box shows the name of the Profile host with a unique Fibre Channel identifier appended to it—in this case, *_fc0*.

7. Enter dotted decimal IP address in the box provided. Contact your network administrator for an appropriate address. The IP address must be different than the Ethernet address for the machine. Click **Clear** to erase an entry.

8. Enter a netmask in the box provided. A netmask can help speed routing of network traffic. Click **Clear** to erase an entry. Based on the address you use for a netmask, there is an implicit netmask, but you can override this with a larger mask. For example, *255.0.0.0* can be overridden by *255.255.0.0* or *255.255.255.0*.

9. Enter a dotted decimal gateway address in the box provided. This is if you have a Profile VideoGateway attached to your network. Click **Clear** to erase an entry.

10. Enter a hardware address in the box provided, in the range 1 to 120. A hardware address of 0 (zero) will allow the address to be automatically configured. Every Fibre Channel node (board) on your Profile network must have a unique hardware address.

11. Click **OK**.

Using Media Manager

The Profile Media Manager allows you to have access to digitally stored JPEG and MPEG media and provides tools for managing that media—such as explore, cut, copy, paste, and delete. Media may be stored locally on disk on your Profile unit, or it may be on a disk expansion unit, RAID system, or library system attached to your Profile unit. You can also transfer media stored on any Profile system on your Profile network via a Fibre Channel connection.

Digital video and audio media may be stored in volumes. A volume is a disk set or file system on one of the following machines:

- PDR 100 Professional Video Disk Recorder

- PDR 200 or PDR 300 Video File Server

- PRS 200/A or PRS 250 Profile RAID Storage system

- PDX 103 Profile Disk Expansion Chassis

- PDX 208 Profile Disk Expansion Chassis

Video and audio clips can also be stored on digital tape cartridges in the PLS 20 and PLS 200 Profile Library Systems.

With Media Manager, you view media in a tree structure. On disk, media may consist of video and audio clips and masters. Clips and masters are organized into bins that are kept on a volume. A bin is a container for clips and masters, similar to a directory on a computer. A clip refers to segments or portions of a media file or a media file in its entirety. A master is an edited sequence of clips. On a cartridge in a library system, media also consists of clips and masters. Cartridges are divided into one or more partitions.

NOTE: Profile system software version 2.5 supports Media Manager version 1.1.5.

Starting and Exiting the Media Manager

To start the Media Manager application with Windows NT:

• Double-click the Media Manager shortcut icon.

Or:

• Choose **Start | PDR Applications | Media Manager**.

The Media Manager window appears (see Figure 46). The tree pane is on the left and the contents pane is on the right. What appears in the contents pane depends on what you select in the tree pane. For example, if you select the volume icon **INT:** in the tree pane, the Recycled and default bins appear in the contents pane. If you select a bin, the masters and clips in that bin appear in the contents pane. Masters and clips will only appear in the contents pane.
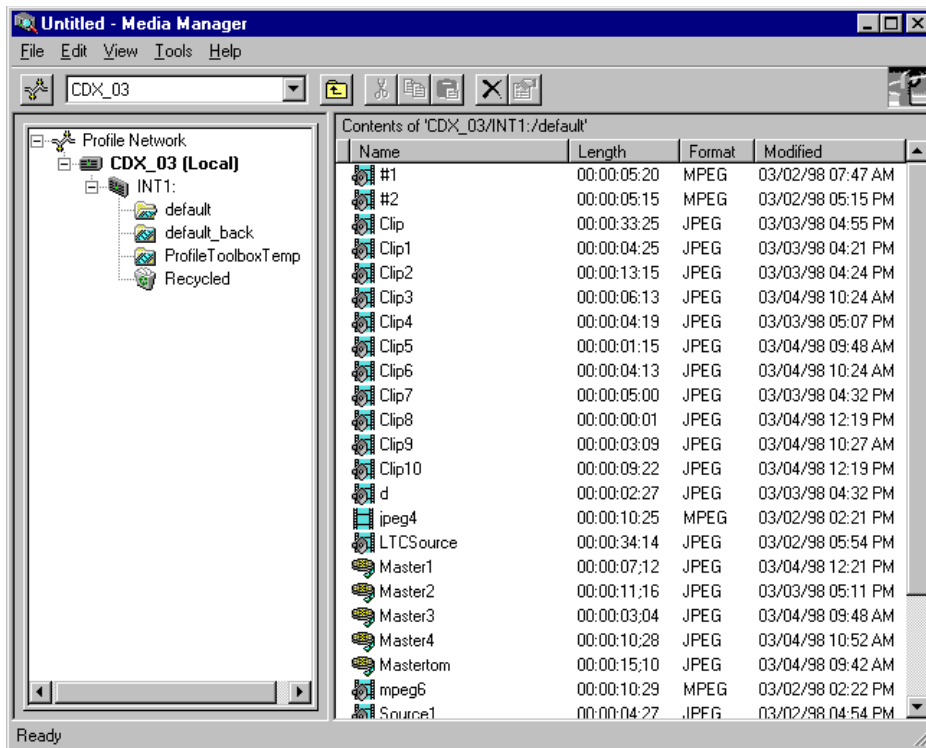
Figure 46. Media Manager window

To exit the Media Manager, choose **File | Exit**.

A message box is displayed, asking you to confirm that you really want to exit the Media Manager application. Click on the **Yes** button to confirm the exit or the **No** button to cancel the quit command.

Whenever you start the Media Manager, a Hardware Communication Monitor is also started, if it is not already running. This program makes calls to the disk recorder and keeps track of the Profile host file (*profile.hst*) which lists Profile systems on the network. The Hardware Communication Monitor is normally invisible in its operation, but is essential to the operation of Media Manager. It appears in the Processes tab of the Windows NT Task Manager as VMHWCOM.EXE; ending this process will stop Media Manager as well.

Starting Other Applications from the Tools Menu

You can start other tools and applications from Media Manager's **Tools** menu:

- Choose **Tools | Transfer Monitor** to start the Transfer Monitor tool. See "Viewing the Transfer Monitor" on page 156.

- Choose **Tools | Media Manager** to start another instance of the Media Manager.

- Choose **Tools | Tool Box Editor** to start the optional Tool Box Editor, if available. See Chapter 8, "Using the Tool Box Editor" on 253.

- Choose **Tools | List Manager** to start the optional List Manager, if available. See Chapter 9, "Using the List Manager" on 281.

- Choose **Tools | Transcode** to start the Transcode Utility. This utility converts media between different compression formats, such as from JPEG to MPEG. See "Using the Transcode Utility" on page 130.

When an application is started from the Media Manager, it initially connects to the machine that was selected in the Media Manager's machine list box. If the application is not installed, an error occurs.

Viewing and Hiding the Toolbar and Status Bar

By default, the toolbar is visible. To hide it:

• Choose **View | Toolbar**.

To make it visible again, choose **View | Toolbar** again.

By default, the status bar is visible. To hide it:

• Choose **View | Status Bar**.

To make it visible again, choose **View | Status Bar** again.

To refresh the tree and contents panes:

• Choose **View | Refresh** or press **F5**.

Viewing Help and Software Version Information

To view Help topics on Media Manager:

• Choose **Help | Media Manager Help Topics.**

To view program and software version information and copyright:

• Choose **Help | About Media Manager.**

Connecting to a Remote Machine

You can connect from your local Profile machine to any remote Profile machine. You can also connect remotely from any PC running Windows NT 4.0. A local Profile machine refers to a Profile system to which you are directly attached. A remote Profile machine refers to a Profile system that is connected to your local system via an Ethernet local area network (LAN).

The Hardware Communication Monitor makes calls to the disk recorder, manages the contents of the Profile host file (*profile.hst*), owns connections to the machines listed in the host file, and passes on change notifications received from each of these machines when other applications—such as other instances of Media Manager—are running simultaneously.

While Hardware Communication is initializing, Media Manager shows the Hardware Communication Monitor message box. If you click the **OK** button, this message box is minimized.

To connect to a remote Profile machine on your Profile network:

1. Choose **Add/Remove Machine** from the **File** menu or from the shortcut menu with a right-click on a machine, volume, or network icon in the tree pane. You can also click the **Add/Remove Machine** button on the toolbar. The Add/Remove Machine dialog box appears (see Figure 47). The label *Local* appears after the name of the local Profile machine.
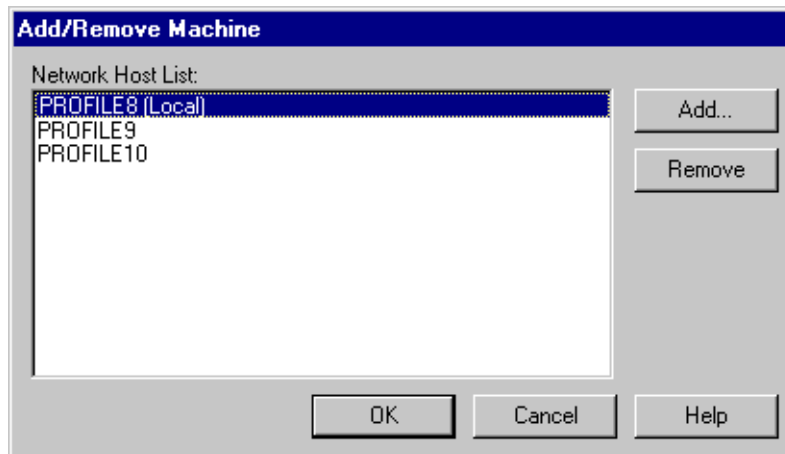
Figure 47. Add/Remove Machine dialog box

2. To add a remote Profile machine to the network host list, click **Add**. The Add Network Host dialog box appears.
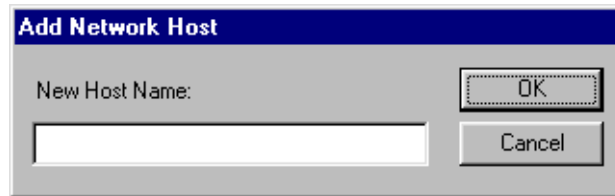
Figure 48. Add Network Host dialog box

3. Enter the name of the machine in the New Host Name box. This can be the host name or the machine's IP address (such as 128.161.37.138).

4. Click **OK**. The new host name is added to the network host list. You can click the **Add** button again to add as many machine names as you want.

5. Click **OK**. The connection status message box appears to show the progress of new connections.

To remove a Profile machine from the network host list:

1. Choose **Add/Remove Machine** from the **File** menu or from the shortcut menu with a right-click on a machine, volume, or network icon in the tree pane. You can also click the **Add/Remove Machine** button on the toolbar. The Add/Remove Machine dialog box appears.

2. Select the name of the machine you want to remove in Network Host List box.

3. Click **Remove**.

4. Click **OK**.

Viewing the Media Hierarchy

The Media Manager window is divided into two main sections: the tree and contents panes. Clips and masters appear in the contents pane. Items are listed alphabetically.

In the tree pane, you can expand or collapse the tree hierarchy by clicking on the + (plus) or – (minus) control buttons, as shown in Figure 49. If you click on a + button, the tree hierarchy is expanded or opened so you can see the branch. For example, under a volume, you see bins. Clicking on the – button collapses or closes the associated branch of the tree, hiding the bins under the volume.

To explore the contents of an item, select the icon representing it and then choose **Explore** from the shortcut menu which is displayed with a right-click. If present, clips and masters are displayed in the contents pane. In this pane, you see information about the media:

- The name of the clip or master.

- The length of the media in the form **00:00:00:00** (Hours:Minutes:Seconds:Frames).

- The compression format of the media: **JPEG** or **MPEG**.

- The date and time the media was last modified, in the format: **12/2/94 9:40 PM** (Month/Day/Year Hours:Minutes AM/PM).
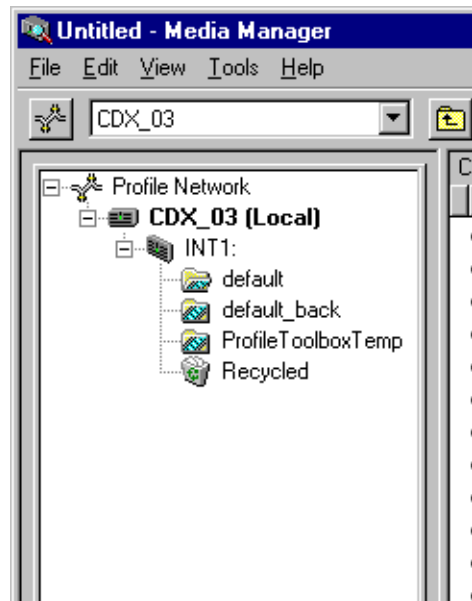
Figure 49. The Media Manager tree pane

The icons shown in tree pane are explained in more detail here.

The Profile network icon is the root for all other items in the tree pane.

Profile machines. Each icon is labeled with the Profile machine's name. A Profile can be a local machine or one connected via Ethernet alone.

A Profile machine connected via Ethernet and Fibre Channel.

An unconnected machine icon. Appears if no connection could be made. This icon cannot be expanded.

A non-Profile server that recognizes Media Manager connection requests. Media may be copied to this server from other machines on the Fibre Channel network.

A volume. A machine's storage is divided into one or more volumes. The volume icon represents a physical set of disks—either an internal disk set, and external expansion box (such as the PDX 208), or a RAID disk array (PRS 200).

A closed bin.

An open bin.

A Recycle bin appears below each volume.

A master.

A locked master.

Clips and archived clips with audio and video.

Locked clips and archived clips with audio and video.

Clips and archived clips with no audio.

Locked clips and archived clips with no audio.

Clips and archived clips with audio only (no video).

Locked clips and archived clips with audio only (no video).

An item in the Profile clip database that Media Manager does not recognize.

A library system – appears after volumes. The library icon appears only on machines connected to a Profile library system.

A cartridge – appears below the library icon.

A cartridge that is out of the library.

A cleaning cartridge – may appear anywhere in the cartridge list.

An unformatted cartridge.

An unformatted, out-of-library cartridge.

Cartridges that are in an unknown state.

An unknown, out-of-library cartridge.

A partition – appears under cartridges. This is a closed partition.

An open partition.

Toolbar

The Media Manager toolbar provides one-button access to commands:

Add/Remove Machine: Opens the Add/Remove Machine dialog box.

Select Current Machine box: Expands the machine item in the tree.

Up One Level: Goes to the folder one level up.

Cut: Removes the selected items and copies them onto the clipboard. Use **Paste** to put them in the new location.

Copy: Copies the selected items to the clipboard. Use **Paste** to put them in the new location.

Paste: Inserts the items you have copied or cut into the selected location.

Delete: Deletes the selected items.

Properties: Displays the properties of the selected item.

Copying Media

To copy one or more clips or masters:

1. In the contents pane, select a clip or master. To extend the selection, press Shift-Up Arrow or Shift-Down Arrow. Choose **Edit | Select All** or Ctrl-A to select all the media in the contents pane.

2. Choose **Copy** from the **Edit** menu or from the shortcut menu with a right-click. You can also click the **Copy** button on the toolbar.

3. Select the location where you want to paste the item. This can be another bin or anywhere in the contents pane when a bin is selected. The selected location may even be in another Media Manager window. If both the source and the destination locations reside on machines connected to the Fibre Channel network, you may copy between machines.

4. Choose **Paste** from the **Edit** menu, or from the shortcut menu with a right-click. You can also click the **Paste** button on the toolbar. A clip may be pasted into the same bin it was copied from. In this case the clip is automatically renamed. Media Manager automatically suggests a new name that does not conflict with any other item at the selected location. The new name is based on the old name with the addition of a number: *source* becomes *source_1*. When you are copying clips to a volume other than the source volume on a Profile system or an library system, **Paste Special** is available as an option on the **Edit** and right-click shortcut menus.

   NOTE: It is possible to play clips or masters with VdrPanel or Tool Box Editor while they are being copied over Fibre Channel.

To copy a bin:

1. In either the tree pane or the contents pane, select a bin.

2. Choose **Copy** from the **Edit** menu or from the shortcut menu with a right-click. You can also click the **Copy** button on the toolbar.

3. Select another bin into which you want to paste the first bin's contents. The selected location may even be in another Media Manager window. If both the source and the destination locations reside on machines connected to the Fibre Channel network, you may copy between machines.

4. Choose **Paste** from the **Edit** menu, or from the shortcut menu with a right-click. You can also click the **Paste** button on the toolbar. The bin may be pasted into the same bin it was copied from. In this case the bin is automatically renamed. Media Manager automatically suggests a new name that does not conflict with any other item at the selected location. The new name is based on the old name with the addition of a number: *source* becomes *source_1*.

NOTE: Copying a bin means that all clips and masters in the bin are copied to the new location.

Using Paste Special

Paste Special is a method of pasting clips or masters that are currently on the clipboard as a result of a copy or cut operation. **Paste Special** is enabled only when you have selected a bin on a different volume a bin on a remote machine, or a partition in a library system.

Unlike **Paste**, which always copies the material between a clip's mark in and out points, **Paste Special** offers you the option of copying all the media that the clip references. To use **Paste Special** after placing media on the clipboard, choose **Paste Special** from the **Edit** menu or the right-click shortcut menu. When the Paste Special dialog box appears, click the button for the paste option you prefer, then click **OK**.
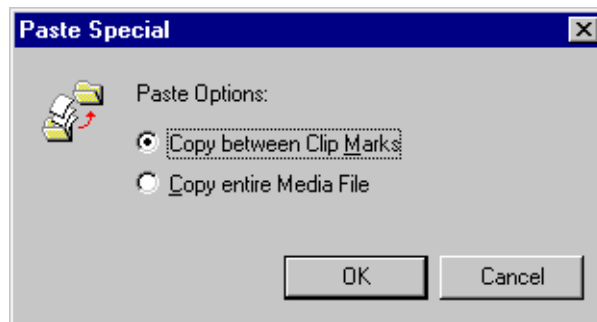
Figure 50. The Paste Special dialog box

Moving Media

To move a clip or master to another bin:

1. In the contents pane, select a clip or master. To extend the selection, press Shift-Up Arrow or Shift-Down Arrow. Choose **Edit | Select All** or **Ctrl-A** to select all the media in the contents pane.

2. Choose **Cut** from the **Edit** menu or from the shortcut menu with a right-click. You can also click the **Cut** button on the toolbar.

3. Select the location where you want to paste the media. This can be another bin or anywhere in the contents pane when a bin is selected. The selected location may even be in another Media Manager window. If both the source and the destination locations reside on machines connected to the Fibre Channel network, you may copy between machines.

4. Choose **Paste** from the **Edit** menu, or from the shortcut menu with a right-click. You can also click the **Paste** button on the toolbar. Pasting media into the same bin has no effect.

To move a clip or master using **Paste Special**:

1. In the contents pane, select a clip or master. To extend the selection, press Shift-Up Arrow or Shift-Down Arrow. Choose **Edit | Select All** or **Ctrl-A** to select all the media in the contents pane.

2. Choose **Cut** from the **Edit** menu or from the shortcut menu with a right-click. You can also click the **Cut** button on the toolbar.

3. Select the location where you want to paste the media. To use **Paste Special**, you must select a bin on a different volume, a bin on a remote machine, or a partition in a library system.

4. Choose **Paste Special** from the **Edit** menu, or from the shortcut menu with a right-click. When the Paste Special dialog box appears, click the button for the paste option you prefer, then click **OK**.

To move a clip or master using drag and drop:

1. In the contents window, select one or more clips or masters.

2. Drag the selection and drop it at the appropriate location. This can be a bin or anywhere in the contents pane when a bin is selected. The selected location may even be in another Media Manager window. The tree pane will automatically scroll when dragging a bin to the very top or bottom of the tree.

If you hold down the **Ctrl** key when you drop the item, the item is copied to the new location, not moved. Dragging a clip or a master to a different machine or volume always results in a copy—the original clip is not deleted.

When copying or moving clips to a new location, if a clip or master with the same name already appears at that location, you will be prompted to change the name or cancel the operation, as shown in Figure 51.
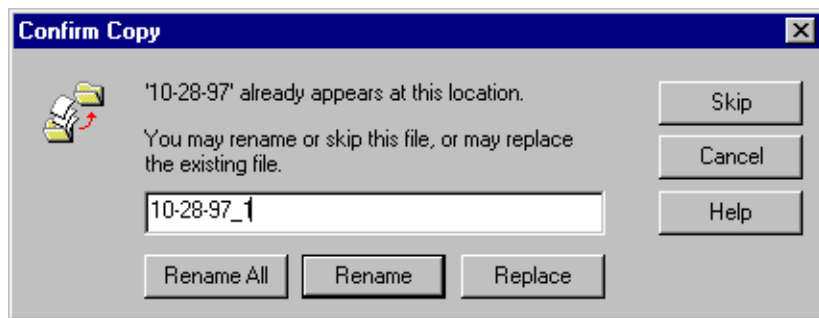
Figure 51. Confirm Copy dialog box

Duplicating Media

To *duplicate* media means that you copy a clip or master and the underlying media files that the clip or master reference. A normal copy operation between locations on the same Profile machine does not copy the associated media files, only references to those media files.

> *NOTE: You can play clips or masters with VdrPanel or Tool Box Editor while Media Manager is duplicating the clip or master. This is only practical for longer media.*

To duplicate a clip or master:

1. In the contents pane, select the clip or master you want to duplicate.

2. Choose **Duplicate** from the **Edit** menu or from the shortcut menu with a right-click. The Duplicate operation always automatically renames the new clip.

Creating, Renaming and Deleting Bins

A bin can have a name up to 32 characters long. Spaces are legal characters, but count for two characters. Colons (:) and slashes (/) are illegal. Tildes (~) are illegal as a first character in a bin name.

To create a new bin:

1. In the tree pane, select the machine or volume where you want to create the new bin. When a volume icon is selected, the new bin is added to that volume. When a machine icon is selected, a new bin is created in the first volume in that machine.

2. Choose **New Bin** from either the **File** menu or from the shortcut menu with a right-click.

3. A new bin called *NewBin* is placed in the tree. The bin name is highlighted so you can change it. Accept the new bin name by pressing **Enter**.

> *NOTE: Renaming a bin involves modifying the path of every clip or master in the bin to reflect the new name. If a clip or master cannot be renamed because it is locked or in use, you end up with two bins: one with the old name and one with the new one. The clip that could not be modified remains in the bin with the old name.*

To rename a bin:

1. Select the bin in either the tree or contents pane.

2. Choose **Rename** from either the **File** menu or from the shortcut menu with a right-click. You can also select the bin a second time.

3. The name of the bin is highlighted. Type a new name for the bin and press **Enter**.

   NOTE: Deleting a bin involves deleting every clip or master currently in the bin. If a clip or master cannot be deleted because it is locked or in use, the bin is not deleted either—it will only contain those clips or masters that could not be deleted. The rest go to the **Recycle** *bin or are deleted directly.*

To delete a bin:

1. Select the bin or bins in either the tree or contents pane.

2. Press **Delete**, **Backspace**, choose **Edit | Delete** or with a right-click, choose **Delete** from the shortcut menu. Press **Shift-Delete** to skip the **Recycle** bin and delete the bin or bins immediately.

3. The bin icon disappears from the tree and the contents of the bin are moved to the **Recycle** bin.

Renaming Clips and Masters

A clip or master can have a name up to 32 characters long. Spaces are legal characters, but count for two characters. Colons (:) and slashes (/) are illegal in clip and master names. Tildes (~) are only illegal as first characters.

To rename a clip or master:

1. Select the clip or master in the contents pane.

2. Choose **Rename** on the **File** menu or with a right-click. You can also select the item a second time.

3. The name of the clip or master is highlighted. Type a new name for the clip or master and press Enter.

Deleting Clips and Masters

When a clip or master is deleted, it is just moved to the **Recycle** bin. It is permanently deleted when the **Recycle** bin is emptied.

To delete a clip or master:

1. Select the clip or master in the contents pane.

2. Press **Delete**, **Backspace**, or choose **Delete** on the **File** menu or from the shortcut menu with the right-click. Press **Shift-Delete** to skip the **Recycle** bin and delete the material immediately.

3. The clip or master icon disappears from the tree and is moved to the **Recycle** bin.

Emptying the Recycle Bin

When a clip or master is deleted, it is moved to the **Recycle** bin and is permanently deleted when the **Recycle** bin is emptied. If an item of the same name is in the **Recycle** bin, the new item is automatically renamed.

To empty the **Recycle** bin:

1. Select the bin labeled Recycled in the tree pane.

2. Choose **Empty Recycle Bin** with a right-click or from the **File** menu.

To always delete media immediately, avoiding the **Recycle** bin:

1. Select the bin labeled **Recycled** in the tree pane.

2. Choose **Properties** with the right-click or from the **File** menu. The Recycle Bin Properties dialog box appears (see Figure 52).

3. Click the **Options** check box to enable immediate removal of deleted items.

4. Click **OK**.
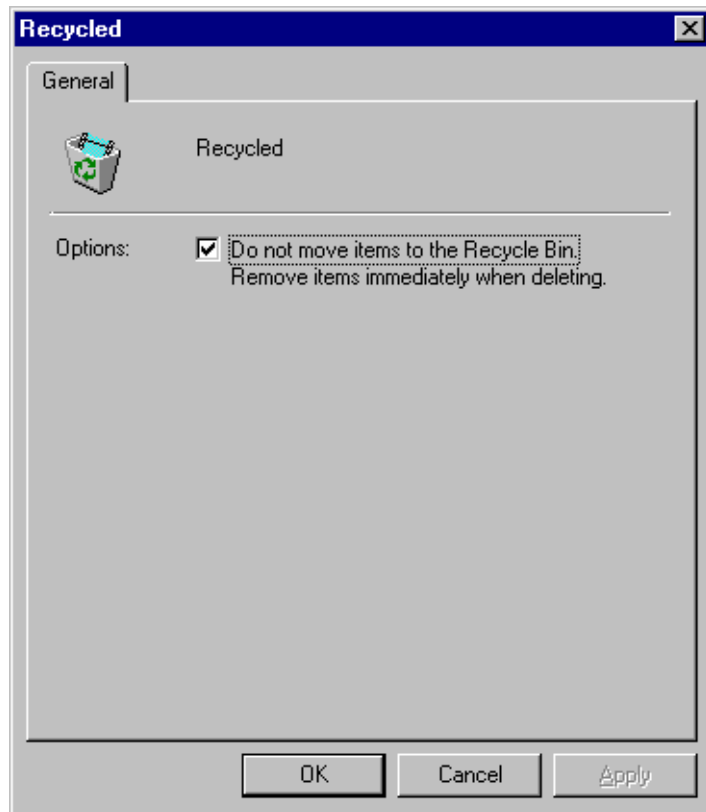
Figure 52. Recycle Bin properties dialog box

Viewing Properties

Media Manager lets you view the properties of a volume, media properties for clips and masters, and properties for a library system (see "Viewing Library, Cartridge and Archived Clip Properties" on page 150).

To view volume properties:

1. Select a volume in the tree pane.

2. Choose **Properties** from the **File** menu or from the shortcut menu with a right-click. You can also click the **Properties** button on the toolbar. The Properties dialog box for volumes appears (see Figure 53).
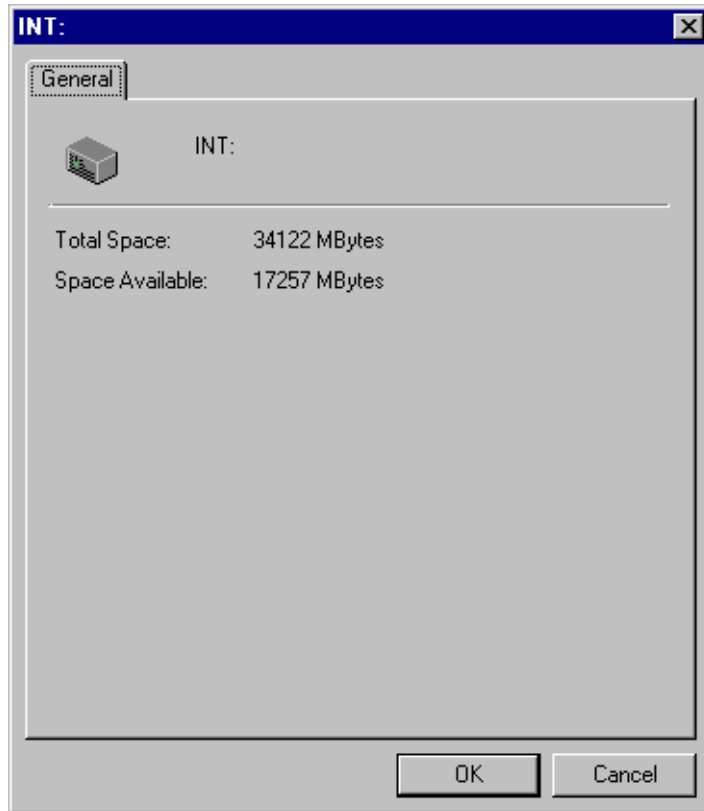
Figure 53. Properties dialog box for volumes

To view media properties:

1. Select a clip or master in the contents bin.

2. Choose **Properties** from the **File** menu or from the shortcut menu with a right-click. You can also click the **Properties** button on the toolbar. The Properties dialog box for clips or masters appears (see Figure 54).
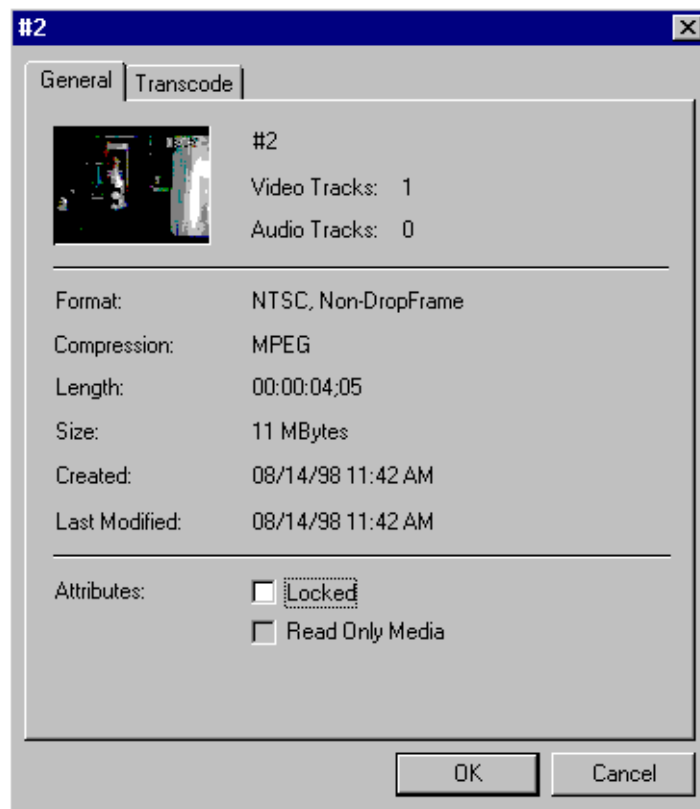
Figure 54. Properties dialog box for clips or masters

3. Click the **General** tab to view these properties:

   - A preview frame of the clip or master to help identify it. Preview frames are not available for MPEG masters.

   - The name of the clip or master.

   - How many tracks the clip or master uses for both audio and video.

   - The video format, either NTSC or PAL. NTSC clips are recorded with either drop-frame or non-drop-frame timecode.

   - The compression format, either JPEG or MPEG.

   - The length of the clip or master. The length is shown in timecode format: **00:00:00:00** (Hours:Minutes:Seconds:Frames).

   - The size of the media in megabytes (MBytes).

   - The date and time that the media was created and the date and time it was last changed. The date and time the media was created or last changed is shown in the format: **12/2/94 9:40 PM** (Month/Day/Year Hours:Minutes AM/PM).

4. Click the **Locked** box to lock (or unlock) the media under Media Manager. Clips and masters with the locked attribute cannot be renamed, deleted, or modified in any way.

   If the **Read Only Media** box is checked, it means that the media is protected under VdrPanel and cannot be deleted or rerecorded, but you can change marks. See "Setting Clip Protection" on page 195.

5. Click the **Transcode** tab to view the transcode history (shown in Figure 55) for the master or clip. Each entry on the history page contains the date and time of the conversion, user description, target format, and when applicable, data rate, chrominance value, and GOP structure.

#2   ✕

| General | Transcode |

Transcode History:

8/15/98 1:24 PM -- Original format.
JPEG, 24 Mbps

9/10/98 2:20 AM -- JPEG to MPEG
  Transcoded to MPEG 15 Mbps for transmission.
  Deleted the source on the profile - Mark
MPEG, 15 Mbps, 4:2:2, IBBP

[OK]   [Cancel]
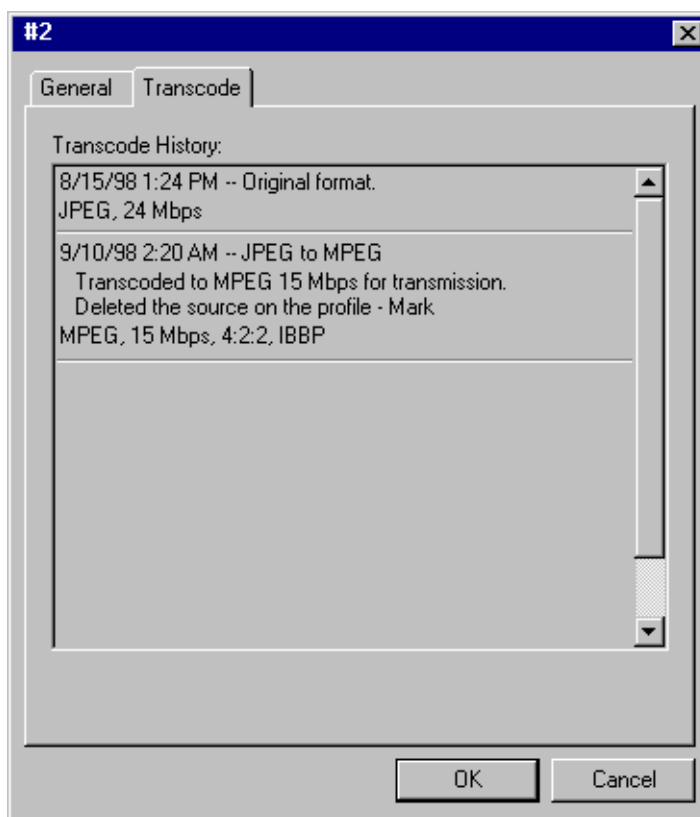
Figure 55. The transcode history page

Finding Clips and Masters

You can locate clips and masters anywhere on the Profile network. If you select the Profile Network icon, you will search all machines and libraries on the network. If you select a machine, your search will be limited to that machine's volumes and attached library. If you select a cartridge in a library, your search includes all partitions in the cartridge.

1. Select the item where you want to begin your search in either the tree or contents panes.

2. Choose **Find** on the **Edit** menu or from the shortcut menu with a right-click. The Find dialog box appears (see Figure 56).
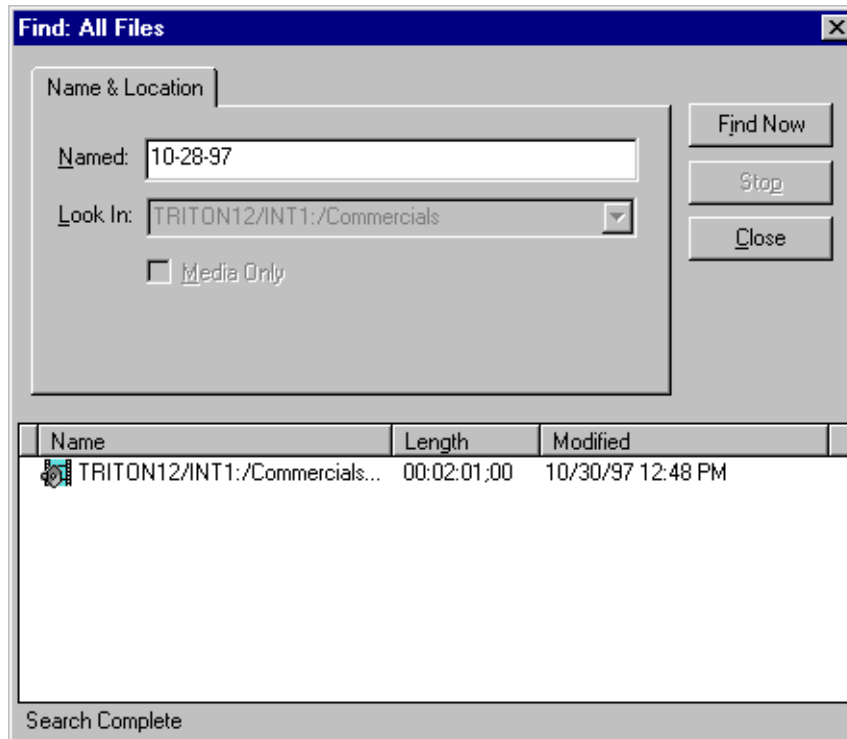
Figure 56. Find dialog box

3. Enter the name of the clip or master in the Named box—in this example, *10-28-97*. The Look In box indicates where the search will begin.

> ### *NOTE: Wildcards are not supported.*

4. Click **Find Now**. Click **Stop** to abort the search. When a match is found, the result is displayed in the box at the bottom of the **Find** dialog box, as shown in Figure 56.

5. If you double-click an item in the list of found items, the tree pane is expanded and the item is selected in the contents pane.

6. You can copy an item from the found list by holding the **Control** key and dragging the item to the desired location, or you can move it by dragging it without the **Control** key.

7. Click **Close** when you have completed your search.

Using the Transcode Utility

If you have MPEG encoders or decoders in your Profile disk recorder, you may have media recorded in motion JPEG compression format that you want to convert to MPEG. The Transcode Utility is a tool that makes format conversions easy. The Transcode Utility converts media files—clips and masters—in four ways:

- From JPEG to JPEG using a different video quality

- From JPEG to MPEG

- From MPEG to MPEG using a different video quality

- From MPEG to JPEG

NOTE: Converting a low-quality video clip to a higher quality (higher bit rate) will not improve the video quality of the clip, though it will consume more disk space.

The Transcode Utility is started from the **Tools** menu in Media Manager.
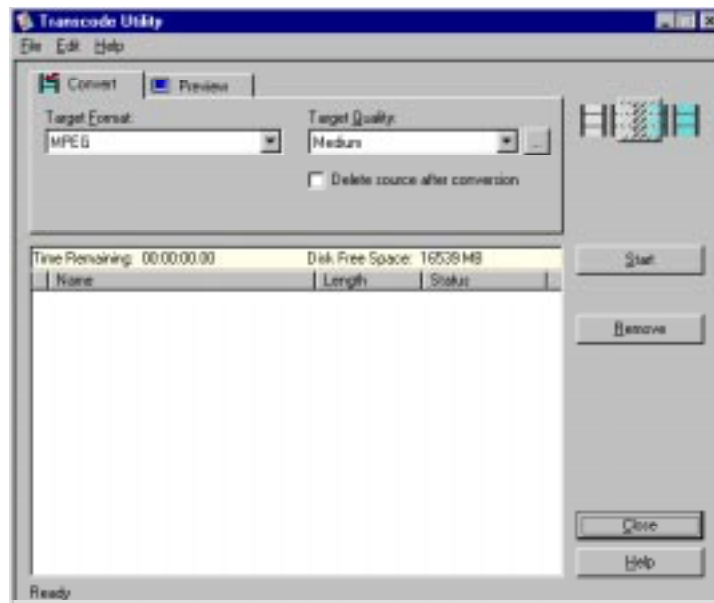
Figure 57. Transcode Utility window

To convert clips or masters:

1. Select one or more clips or masters that you want to transcode in Media Manager's contents pane.

2. In Media Manager, choose **Tools | Transcode**. The Transcode Utility dialog box appears with the selected media in the transcode list.

3. You may add more clips or masters to the transcode list by dragging them from Media Manager and dropping them on the list. You can also transfer media using **Copy** and **Paste** commands.

4. In the **Convert** tab, select the target format, either MPEG or JPEG.

5. In the Video Quality box, select a video quality if you want something other than the default (Medium). The higher the quality, the more disk space is used.

6. To change a custom quality setting, click the button next to the Video Quality list box, and the Custom Video Quality Settings dialog box appears. Select either **Custom1** or **Custom2** in the Video Quality list box. When selected, you can change the name of a custom setting. Click **Undo** to cancel changes and **OK** when done.

   - For JPEG (see Figure 58 and Table 6) select a video quality with the slider. You can move the slider with the mouse or arrow keys.

   - For MPEG (see Figure 59 and Table 7) select a chrominance value, either **4:2:0** or **4:2:2**. Then move the diamond on the grid or click the High, Medium, Low, or Draft button—the corresponding bit rate and picture structure is shown on the right side of the dialog box.

   NOTE: You can edit I-frame clips only. To make an MPEG clip I-frame, drag the diamond to the far left side of the grid.
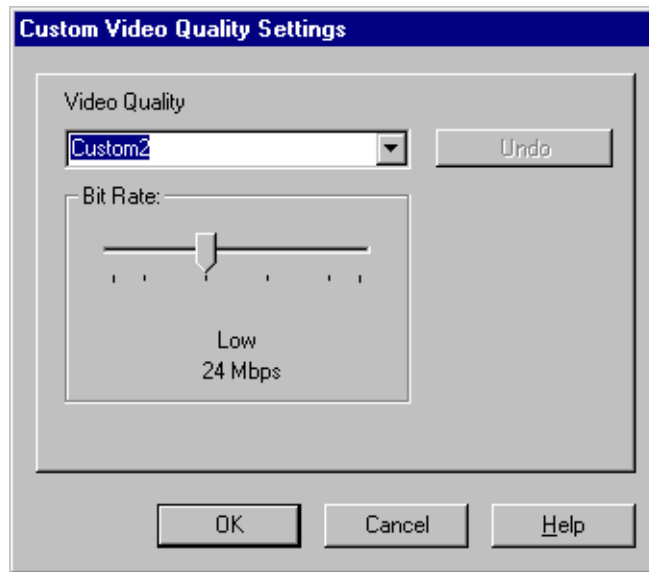
Figure 58. JPEG Custom Video Quality Settings dialog box

Table 6. JPEG video quality (compression)

Quality Settings	Compression in Mbps
Draft	12
Low	24
Medium (default)	36
High	48
Custom 1 or 2	6–54
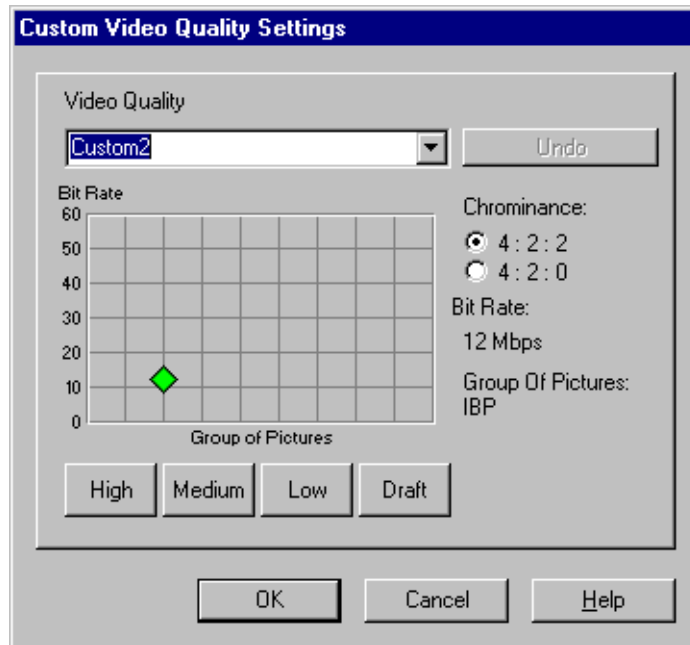
Figure 59. MPEG Custom Video Quality Settings dialog box

Table 7. MPEG Video quality (compression)

Quality Settings	**Compression in Mbps**	**Chrominance**
Draft	4	4:2:0
Low	8	4:2:0
Medium (default)	15	4:2:2
High	24	4:2:2
Custom 1 or 2	4–44	4:2:2
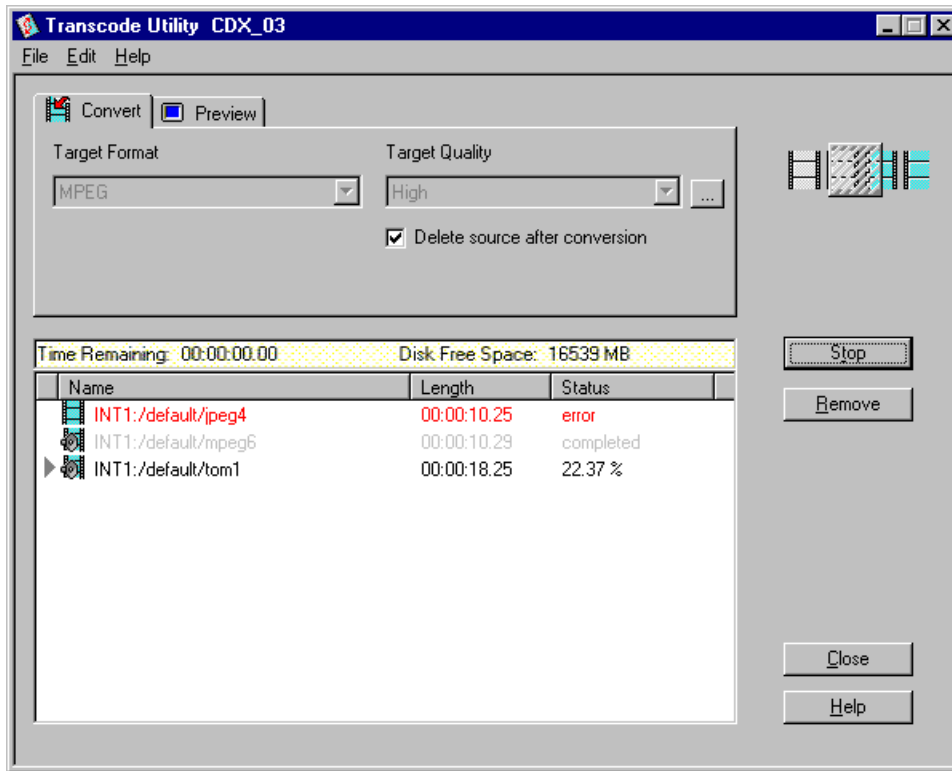
Figure 60. Transcode Utility dialog box, Convert tab

7. In the **Preview** tab, select a video output for the source clip or master from the Source Video Output box. This allows you to watch the source media play out on the monitor during the conversion.

8. From the Target Video Output box, select a video output for the target clip or master. This allows you to compare video quality by watching the target media play out on a monitor during the conversion, with a few seconds delay from the source media.

9. If there is media in the list that you have decided not to convert, select it in the media pane, then click **Remove**.

10. If you want to delete the original clip or master automatically after it is converted, click **Delete source after conversion**. This will save disk space.

NOTE: A deleted clip or master cannot be restored.

11. Click **Start**. The Transcode Description dialog box appears. Enter a descriptive message to be stored as part of the transcode history and when done, click **OK** to continue the conversion**.**
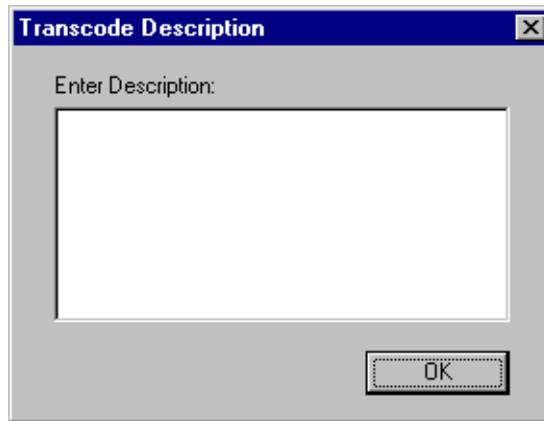
Figure 61. The Transcode Description dialog box

The conversion starts with the first clip or master in the list and continues to the last. If the media are not deleted (see step 10) the source clips and masters are moved to a backup bin. For example, if the source media is in the **default** bin, the original source is moved to a bin called **default_bak** (bin basename plus **_bak**). You can stop the conversion process at any time by clicking **Stop**. Start the process again by clicking **Restart**.

*NOTE: An error occurs (listed in the Status column) when a clip is the wrong video standard, is already present in the _**bak** bin, or cannot be opened, among other faults.*

12. Click **Close** or choose **File | Exit**.
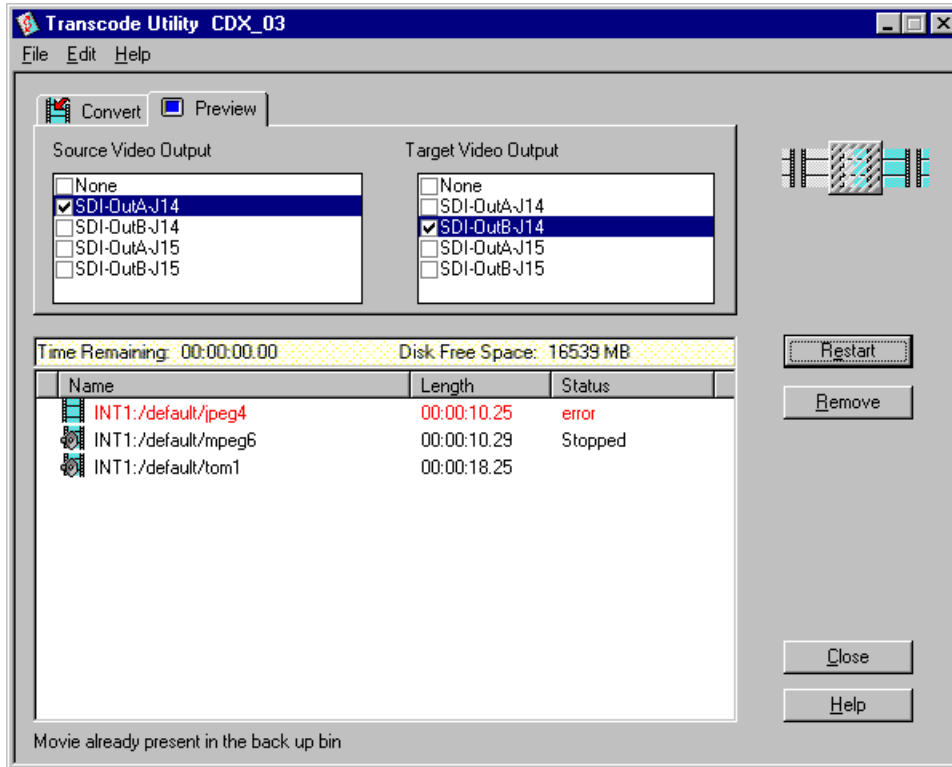
Figure 62. Transcode Utility dialog box, Preview tab

Using a Library System

Media Manager supports both the PLS 20 and the PLS 200 library systems. The PLS 20 Profile Library System is a stand-alone drive for reading and writing to individual magnetic tape cartridges. The PLS 200 Profile Library System is a robotic library that stores up to 80 magnetic tape cartridges. The PLS 200 is a cost-effective mechanism for spot or news storage and management, plus a solution and method for the long-term archival of material. Total storage capacity is determined by the number of tape cartridges available and the video compression method used (JPEG or MPEG).

Archiving a Bin or Clip

To archive a clip means to copy it from disk to a cartridge in the library system. Clips are always copied into the library when archived: they are never moved. To archive a bin means to copy all the clips and masters in the bin to the library system without having to individually select each clip or master.

NOTE: The archiving operation copies the data to the tape cartridge, but does not update the cartridge directory. Updates can occur when you export the tape, or when you specifically perform an update. See "Exporting a Cartridge" on page 142, and "Updating and Inventorying Cartridges" on page 144.

To archive a bin or clip using a copy command:

1. Select the bin in the tree pane or the clip in the contents pane that you want to archive. To extend the selection, press Shift-Up Arrow or Shift-Down Arrow. Choose **Edit | Select All** or Ctrl-A to select all the media in the contents pane.

2. Choose **Copy** either from the **Edit** menu or from the shortcut menu with a right-click. You can also click the **Copy** button on the toolbar.

3. In the tree pane, select the partition icon where you want to archive the bin or clip.

4. Choose **Paste** or **Paste Special** either from the **Edit** menu or from the right-click shortcut menu. You can also click the **Paste** button on the toolbar.

If there is a bin or clip with the same name in the partition where you want to archive it, you are prompted to change the name or cancel the operation. Also, a clip can only be added to a partition if there is enough space for it.

To archive a clip or bin using drag and drop:

1. In the tree pane, click the cartridge icon where you want to archive a clip. This expands the tree pane to reveal the partition icon or icons.

2. Click on the bin that you want to copy or from which you want to copy a clip. The clip icons from the bin appear in the contents pane.

3. In the tree pane select the bin icon, or in the contents pane select the clip icon that you want to archive. Hold the left mouse button and drag the selected icon to the partition icon in the tree pane where you want to archive the bin or clip.

4. If you want to check on the progress of an archive operation, click on the Profile logo or choose **Tools | Transfer Monitor** to view the Transfer Monitor.

Restoring a Bin or Clip

To restore an archived clip means to copy it from a partition in a cartridge in the library system to disk. Clips are always copied out of the library when restored: they are never moved.

To restore an archived clip using the copy method:

1. In the tree pane, click the cartridge icon from which you want to restore a clip. This expands the tree pane to reveal the partition icon or icons.

2. Click the partition in the tree pane from which you want to restore to reveal the clips in the contents pane.

3. In the contents pane, select the archived clip you want to restore. To extend the selection, press Shift-Up Arrow or Shift-Down Arrow. Choose **Edit | Select All** or Ctrl-A to select all the media in the contents pane.

4. Choose **Copy** on the **Edit** menu or from the shortcut menu with the right-click. You can also click the **Copy** button on the toolbar.

5. Select the location where you want to restore the archived clip. This can be a bin or anywhere in the contents pane when a bin is selected. The selected location may also be in another Media Manager window.

6. Choose **Paste** on the **Edit** menu or from the shortcut menu with a right-click. You can also click the **Paste** button on the toolbar.

If there is a clip with the same name in the bin where you want to restore it, you are prompted to change the name or cancel the operation.

To restore a clip using the drag and drop method:

1. In the tree pane, click the cartridge icon you want to restore a clip from. This expands the tree pane to reveal the partition icon or icons.

2. Click the partition in the tree pane that you want to restore from to reveal the clips in the contents pane.

3. In the contents pane, click on the clip icon or icons you want to restore, hold the left mouse button, and drag it to the bin icon in the tree pane where you want to restore the clip.

4. If you want to check on the progress of a restore operation, click on the Profile logo or choose **Tools | Transfer Monitor** to view the Transfer Monitor.

Renaming an Archived Clip

A clip can have a name up to 32 characters long. Spaces are legal characters, but count for two characters. Colons (:) and slashes (/) are illegal in clip names. Tildes (~) are only illegal as a first character in a clip name.

To rename an archived clip:

1. In the tree pane, select the library, cartridge, and partition where the archived clip is stored.

2. In the contents pane, select the archived clip you want to rename.

3. Choose **Rename** from the **File** menu or from the shortcut menu with a right-click. You can also select the clip's name a second time.

4. Type the new name and press Enter.

NOTE: The renaming operation does not take permanent effect until after an update operation (see "Updating and Inventorying Cartridges" on page 144).

Deleting an Archived Clip

To delete an archived clip:

1. In the tree pane, select the library, cartridge, and partition where the archived clip is stored.

2. In the contents pane, select the archived clip or clips you want to delete.

3. Press the **Delete** or **Backspace** key, or choose **Delete** from the **File** menu or from the shortcut menu with a right-click.

When an archived clip is deleted, it is not moved to the **Recycle** bin. It is removed from the library database's record of archived clips. Also, since tape is not a random access medium, the storage space is not reclaimed as it is on the disk drives, and the space cannot be reused until all clips in a partition have been deleted.

> *NOTE: The delete operation does not take effect until after an Update operation (see "Updating and Inventorying Cartridges" on page 144).*

Importing a Cartridge

To *import* a cartridge is to insert or add it into the library system:

1. In the tree pane, select the library icon. If you have a stand-alone drive, you must insert the cartridge you are importing into the drive.

2. Choose **Import** either from the **File** menu or from the shortcut menu with a right-click. The Import Cartridge dialog box appears (see Figure 63). If you have two or more PLS 20 systems connected simultaneously, you must enter a drive number when prompted.
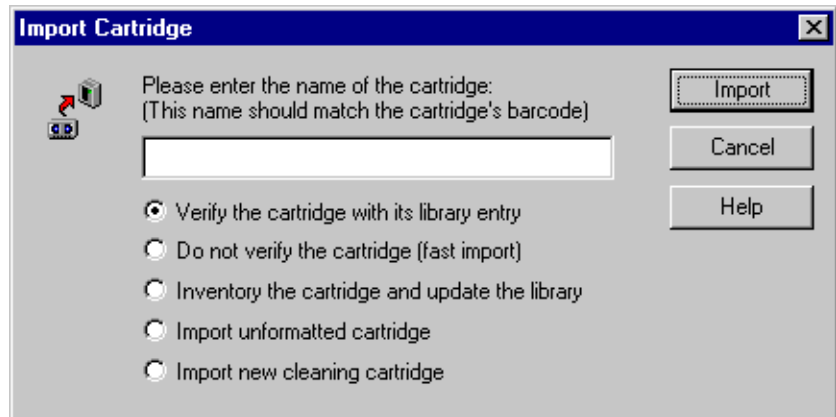
Figure 63. Import Cartridge dialog box

3. Enter a unique label name (number) for the cartridge. This name must match the barcode on the cartridge—for example, **00000015**. If the label is not unique or matches a label already in the library, the cartridge is rejected.

4. Click a button to tell Media Manager how you want to import the cartridge:

   - If you want to verify the contents of the cartridge, click **Verify the cartridge with its library entry**. If the label (barcode) matches the one in the library and the directory entries match, the cartridge is imported. If the label matches but the directory entries do not, the cartridge is rejected. If the library system can find no record of the barcode label, the cartridge is stored as an unknown cartridge.

   - For a fast import with no verification of the cartridge's contents, click **Do not verify the cartridge (fast import)**. As long as the label matches one in the library, the cartridge goes directly into an available slot. If the library system can find no record of the barcode label, the cartridge is stored as an unknown cartridge.

   - To inventory the cartridge, click **Inventory the cartridge and update the library**. The cartridge is loaded into a transport and its contents are inventoried. The database is updated if it did not match what was inventoried.

   - To import an unformatted cartridge, click **Import unformatted cartridge**. The cartridge is put into the first available slot and appears in the media tree with an unformatted cartridge icon.

- To import a new cleaning cartridge, click **Import new cleaning cartridge**. The library system cannot differentiate between a cleaning cartridge and an ordinary cartridge. It must be told when a cleaning cartridge is imported. If you provide a unique tape label, the cleaning cartridge is stored in a cleaning cartridge bin.

5. Click **Import**.

6. A prompt appears requesting that you physically insert the cartridge into the library. Once the robot is in position and you insert the cartridge, press any button on the library's control panel.

7. The Importing Cartridge dialog box remains on the screen until the robot puts the cartridge in the available slot. Since this is done in the background, click **OK** at any time.

When the robot retracts with the imported cartridge, it scans the cartridges's barcode. If the barcode does not match the name that was entered for the import, it is rejected.

Exporting a Cartridge

To *export* a cartridge is to eject or remove it from the library system:

1. In the tree pane, select the icon for the cartridge you want to export.

2. Choose **Export Cartridge** from the **File** menu, or from the shortcut menu with a right-click, and the Export Cartridge dialog box appears. By default, the cartridge location is *Out of library*.
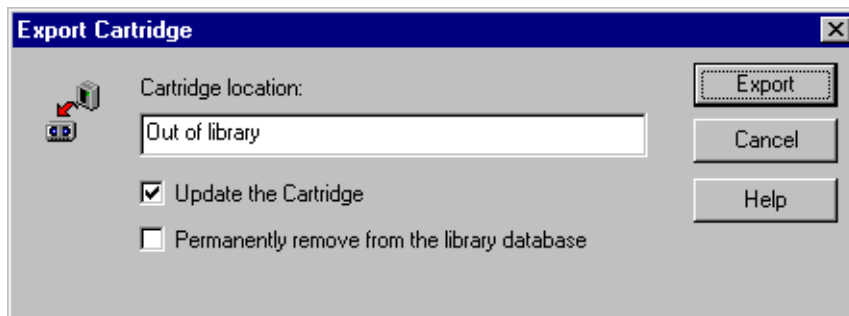
Figure 64. Export Cartridge dialog box

3. Select the appropriate box:

   - If you select **Update the cartridge**, the cartridge is loaded into a transport and its directory is updated to reflect clip name changes or deletions. Then the cartridge is ejected.

   - If you select **Permanently remove from the library database**, all references to the cartridge are deleted from the library database, then the cartridge is ejected.

   - If you select both boxes, the cartridge is loaded into a transport and its directory is updated to reflect clip name changes or deletions. This information is saved on the cartridge. Then all references to the cartridge are deleted from the library database and the cartridge is ejected.

4. Click **Export**.

5. A prompt appears requesting that you physically remove the cartridge from the library. Once the robot is in position and you remove the cartridge, press any button on the library's control panel.

6. The Exporting Cartridge dialog box remains on the screen until the robot ejects the cartridge. Since this is done in the background, click **OK** at any time. If you are using a PLS 20, you must manually remove the cartridge from the drive.

Updating and Inventorying Cartridges

Using the Media Manager to archive, delete, or rename bins or clips simply updates the library database—not the cartridge directory. This is why delete and rename operations are so fast: the cartridge is not loaded into a transport. Archive operations do copy data to a cartridge, but the cartridge directory is not updated. Once a bin or clip is archived, deleted, or renamed, the library database and the cartridge's physical directory are out of synch.

The update and inventory operations allow you to resynchronize the cartridge directory and library database. The update operation rewrites the cartridge directory with the library database's record of what should be on that cartridge. Conversely, the inventory operation reads the cartridge directory and rewrites the library database's entry for that cartridge.

>>> *CAUTION: It is very important that you update a cartridge before you inventory the cartridge. Updating prior to inventorying ensures that the cartridge directory reflects all archivals, renamings and deletions since the last update. If you inventory the tape before you update it, any changes to the tape since the last update are effectively lost.*

To update one or more cartridges:

1. In the media tree or contents pane, select one or more cartridge icons.

2. On the **File** menu, or from the shortcut menu with a right-click, click **Update**. Since the update takes several minutes to complete, you are asked to confirm the operation, as shown in Figure 65.
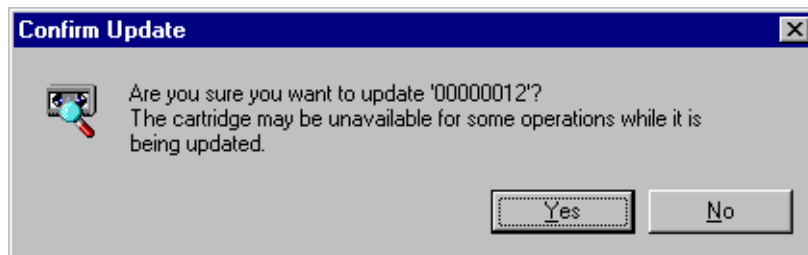
Figure 65. Confirm Update dialog box

3. Click **Yes** to update the cartridge or cartridges.

To inventory one or more cartridges:

1. In the tree or contents pane, select one or more cartridge icons.

2. Choose **Inventory** either from the **File** menu or from the shortcut menu with a right-click. Since the inventory takes several minutes to complete, you are asked to confirm the operation, as shown in Figure 66.
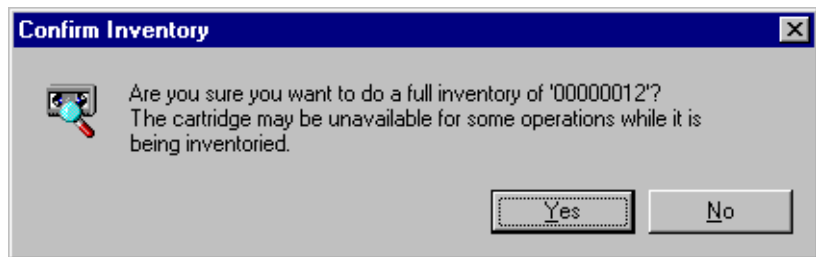
Figure 66. Confirm Inventory dialog box

3. Click **Yes** to inventory the cartridge.

Inventorying the Library

There are times when the contents of the library system do not match the record of those contents in the library database. This usually occurs when the cartridges have been added or removed by hand without appropriate inventories, which is not recommended. The inventory operation rescans the barcodes of the cartridges in the library and updates the database to the actual library contents.

To inventory the contents of the library:

1. Select a library icon in the tree pane.

2. Choose **Inventory** from the **File** menu or from the shortcut menu with a right-click. Since this operation may take several minutes, Media Manager asks you to confirm that you want to inventory the entire library.
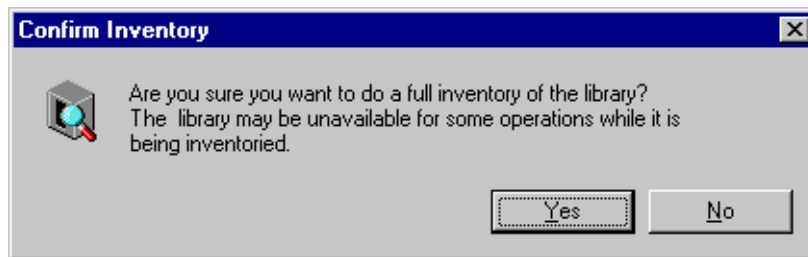
Figure 67. Confirm Inventory dialog box

3. Click **Yes** to inventory the entire library.

The inventory operation, like all library operations, is processed in the background. This allows you to continue working with the Media Manager while the operation is being performed. The Transfer Monitor tool is used to view background transactions. To view the Transfer Monitor, click the Profile logo or choose **Tools | Transfer Monitor**.

Formatting Cartridges

When you format one or more cartridges, all storage space is reallocated and the cartridge is prepared to accept new data.

To format one or more cartridges:

1. Select the cartridge icon or icons in the tree pane

2. Choose **Format** from the **File** menu or from the shortcut menu with a right-click. The Format dialog box appears (see Figure 68). The Name field shows the name or names of the cartridges to be formatted. If more than one cartridge is selected, the number of cartridges is shown (see Figure 69).
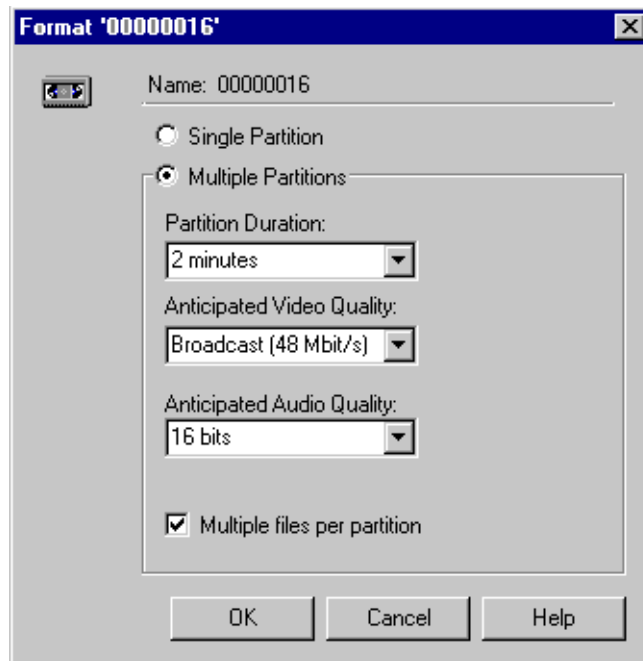
Figure 68. Format Cartridge dialog box
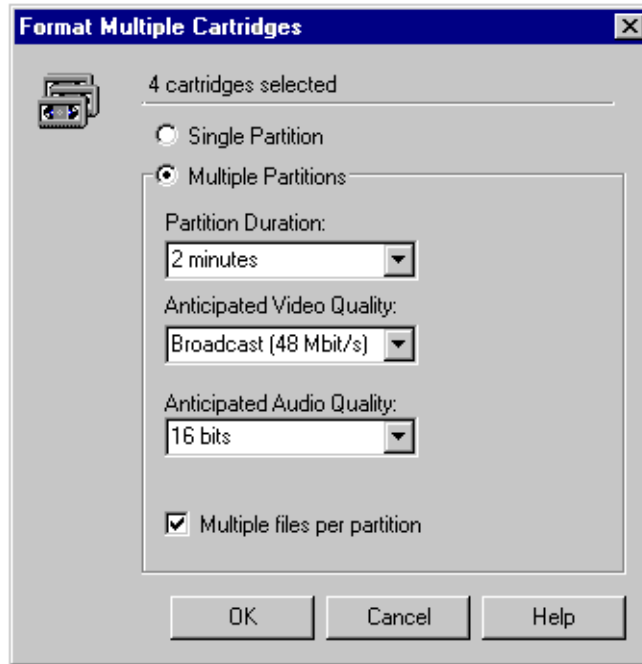
Figure 69. Format Cartridge dialog box

3. Click **Single Partition** or **Multiple Partitions**. With a **Single Partition**, the cartridge or cartridges will have one partition when formatted and all clips are archived to the same partition. With **Multiple Partitions**, the cartridge or cartridges will have two or more partitions, depending on other settings. You do not actually set the duration of clips, or video and audio quality: you simply approximate based on how you anticipate using the cartridges. You cannot set the number of partitions directly. If you choose **Multiple Partitions**:

   - To set the anticipated length (time duration) of clips under the partitions, select the number of seconds or minutes in the Partition Duration box. Selecting Custom opens the Custom Duration box. In the Custom box, enter the duration of seconds in the range 1 to 9999.

- To set the anticipated quality of the video that you will use with these cartridges, select a video quality from the Anticipated Video Quality box. If you anticipate using higher video quality, you will use more tape to store media. This causes the format operation to create larger and fewer partitions.

- To set the anticipated audio resolution that you plan to use with these cartridges, select either 16 bits or 20 bits from the Anticipated Audio Quality box. Different audio qualities affect the amount of tape used and therefore the number of partitions that will be created.

- To allow more than one file (clips) under a partition, click Multiple files per partition. If unselected, only a single clip may be archived per partition.

4. Click **OK**.

Viewing Library, Cartridge and Archived Clip Properties

To view the properties for the library:

1. Select the library icon in the tree pane.

2. Choose **Properties** either from the **File** menu or from the shortcut menu with a right-click. You can also click the **Properties** button on the toolbar. The library properties dialog box appears.

Library	
General	
Manufacturer:	EXABYTE
Model:	EXB-480
Version:	4.14 v1.1

Total Slots:	81	Available Slots:	13
		Data Cartridges:	8
Total Transports:	4	Available Transports:	4
Total Robots:	1	Available Robots:	1
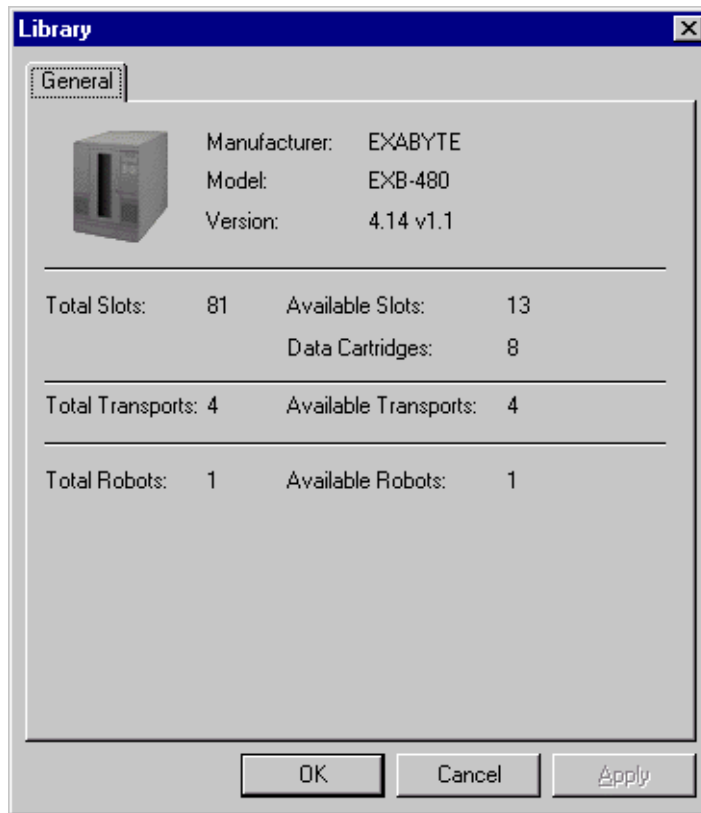
Figure 70. Properties dialog box for the library

3. Click **OK** when you are done viewing the library properties.

To view the properties for a cartridge:

1. Select a cartridge icon in the tree pane.

2. Choose **Properties** from the **File** menu or from the shortcut menu with a right-click. You can also click the **Properties** button on the toolbar. The cartridge properties dialog box appears.

Because the size in megabytes is constant, the available time is an approximation based on the settings in the Anticipated Video and Audio Quality boxes. The higher the quality, the less time is available for storage.

3. Click **OK** when you are done viewing the cartridge properties.
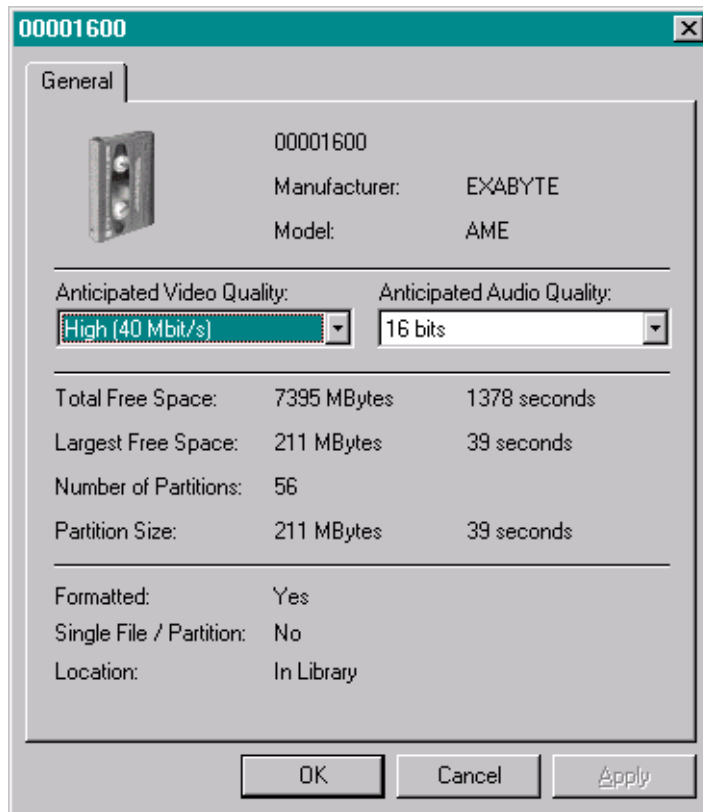
Figure 71. Properties dialog box for a cartridge

To view the properties for a archived clip on a cartridge:

1. Select a clip icon in the contents pane.

2. Choose **Properties** from the **File** menu or from the shortcut menu with a right-click. You can also click the **Properties** button on the toolbar. The clip properties dialog box appears.

clipX1   ✕

General

       clipX1

       Video Tracks: 1

       Audio Tracks: 4

Format:	NTSC, Non-DropFrame
Length:	00:00:03:18
Created:	04/16/97 07:02 PM
Last Modified:	04/16/97 07:02 PM

Attributes: ☐ Read Only

OK   Cancel   Apply
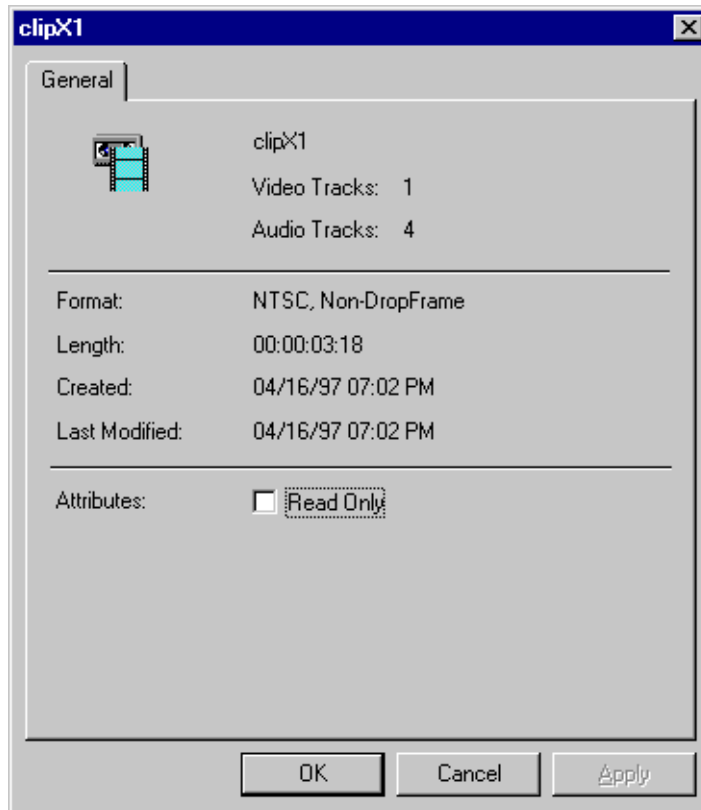
Figure 72. Properties dialog box for an archived clip

3. Click **Read-only** if you want to prevent modifying, renaming, or deleting the clip.

4. Click **OK** when you are done viewing the clip properties.

Viewing Tape Transport Status

To view the status of the tape transports in the library:

1. Choose **Tape Transport Status** from the **File** menu or from the shortcut menu with a right-click. The Tape Transport Status dialog box appears.
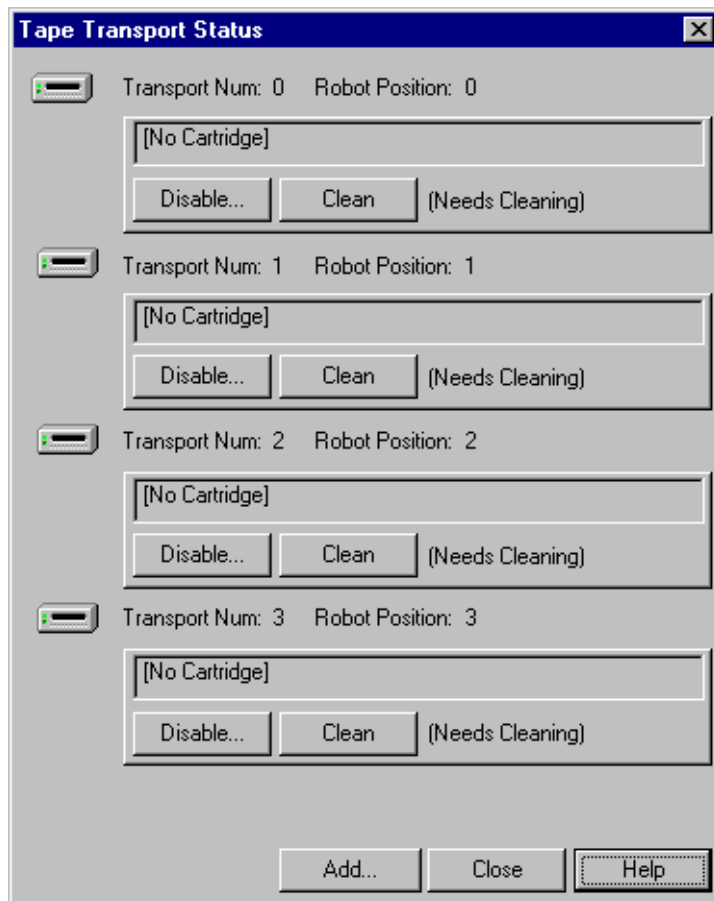
Figure 73. Tape Transport Status dialog box

The labels in the dialog box are explained here:

Transport Icon	A transport icon is shown for each active transport in the library. The order of transports in this dialog does not necessarily reflect the order they appear in the library system.
Transport Number	This is the logical identifier for the transport. It is a number from 0–255.
Robot Position	This is the physical transport identifier. It is a number from 0–3.
Cartridge Name	A cartridge name is shown if one is currently loaded into the transport.
Disable	Removes a transport from service. Click Add to re-enable the transport.
Clean	Loads a cleaning cartridge and cleans the transport
Cleaning Message	The message **Needs Cleaning** appears when the transport is due for cleaning.
Add	Adds a transport to the list of available transports.
Close	Close the Tape Transport Status dialog.
Help	Opens the help topic on the Tape Transport Status dialog.

To add a transport to the list of active transports:

1. In the tree pane, select the appropriate library icon.

2. Choose **Tape Transport Status** from the **File** menu, or from the shortcut menu with a right-click. The Tape Transport Status dialog box appears.

3. Click the **Add** button. The Add Tape Transport dialog box appears, as shown in Figure 74.
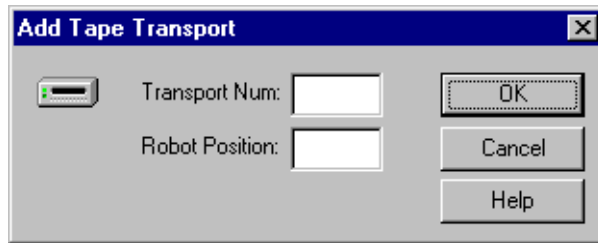
Figure 74. Add Tape Transport dialog box

4. Enter the logical transport number (0–255).

5. Enter the physical robot position (0–3).

6. Click **OK**.

7. Click **Close** when you are done viewing the transport status.

To remove a tape transport from service:

• Click the appropriate **Disable** button.

To clean a tape transport:

• Click the appropriate **Clean** button. A tape transport does not need cleaning until the "Needs Cleaning" message appears beside the **Clean** button. The library system will find the first available cleaning cartridge in the system and use it to clean the selected transport. If the library system is unable to find the cleaning cartridge—that is, there is no cleaning cartridge in the library—you will get a message stating that no cleaning cartridge was found.

Viewing the Transfer Monitor

When clips are copied to a different machine, the media that is referenced by those clips is also copied. This is made possible by using a combination of Ethernet and Fibre Channel networks. Ethernet is used for lower-speed database transfers and queries. The high speed Fibre Channel network is used for transferring the actual media between machines.

Copying media is done in the background to allow you to continue with your work. Adding to and restoring from an archive also is done in the background. Since this may result in more than one transfer occurring at the same time, the Transfer Monitor is used to keep track of these background tasks. Each time a media transfer is started, a new entry appears in the Transfer Monitor.

The Transfer Monitor can be opened at any time. It consists of two tabs: the Network tab which shows all copies over Fibre Channel and Duplicates in progress; and the Library tab which shows any ongoing library transactions.

To track background operations with the Transfer Monitor:

- Choose **Tools | Transfer Monitor** or click the Profile logo on the toolbar. The Transfer Monitor dialog box appears.
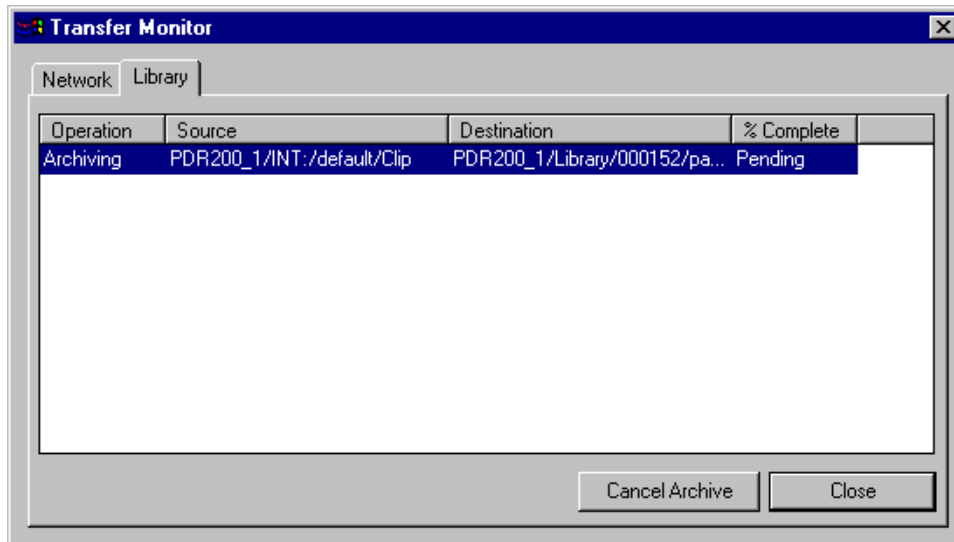
Figure 75. Transfer Monitor dialog box

The Profile logo on the Media Manager toolbar is animated whenever there is an archive item in the Transfer Monitor, whether the Transfer Monitor is open or not. If there are only error items in the Transfer Monitor the error logo appears, without animation.

The **Network** tab divides entries into four columns: source, destination, percent complete, and average megabytes per second. When copying, source and destination paths are constructed using the *machine/volume/bin/clip* names. A destination clip name may be different from the source clip name if the clip was renamed when pasted or moved to the new location (which has to be done when a clip with the same name already appears at the new location).

The **Library** tab divides entries into four columns: operation, source, destination, and percent complete. Library operations that occur in the background include archive, restore, inventory, update, format, delete, import, clean, and export. The destination column is only filled in for the archive and restore operations. The percent complete column will show *Pending* while a cartridge is being loaded into a transport and cued to the correct tape position.

> *NOTE: Only network, library archive, and library restore transactions can be cancelled.*

To interrupt a transfer do the following:

1. Click the Network or Library tab depending on the type of transfer you wish to interrupt.

2. Select the transaction you wish to interrupt.

3. Click the **Cancel Transaction** button. (This button is unavailable unless the transaction is highlighted.)

The label for this button is context specific. If an archive transaction was selected, the button is labeled **Cancel Archive**. If a network copy was selected, the button is labeled **Cancel Transfer**.

Occasionally an error will occur while a transfer is in progress. The destination machine may have unexpectedly run out of storage, the network connection may have gone down, there may have been trouble reading an archive library cartridge. An error is indicated by a change in the Profile logo.

In the Transfer Monitor, entries that could not complete due to error are displayed in red and their percent complete shows *Error*. When the entry is selected, a short description of the error is shown at the bottom of the window. To remove the entry, select it and then click the **Remove** button.

Using VdrPanel

Storing media on a Profile disk recorder rather than on tape opens the door to almost instant access to digital video and audio material. Media is available to all of Profile's channels at once, so you can play a video and audio clip on more than one channel at the same time. Since each of the channels is independent, playback can start at a different time and place in a clip. One of the best features of the Profile system is that you can start playing material while it's still being recorded.

The basic element of digitally stored video and audio is the *clip*. A clip is a reference to video, audio, and timecode material recorded in media files on the Profile media disks. A clip has a beginning and an end, and, when first recorded, the beginning and end correspond to the first and last frames stored in the media file, but a clip may refer to the entire media file or just part of it. When you delete a clip, the media file that the clip refers to remains on disk if at least one other clip refers to it—only the reference to the media file is deleted, not the media itself.

You can mark in and out points in a clip. These marks change the effective beginning and end points of a clip, while not removing the associated material from the media file. On the other hand, you can trim media to remove material from either end of a clip, which also removes the information from the media file. Trimmed material is permanently removed from disk and is no longer available for use.

The default tool for creating and playing clips on the Profile system is VdrPanel. VdrPanel provides you with a VTR-like interface—complete with transport controls—to directly manage media operations. Once created with VdrPanel, clips are available for use with optional Profile applications, such as Tool Box Editor or the List Manager.

VdrPanel allows you to configure any or all of your channels for operation through a controller connected to an RS-422 serial port. These controllers either comply with Profile Protocol, such as the optional PRC100 Profile Remote Control unit, or with Louth, Odetics, BVW, or BVW [insert edit] protocols.

Before using VdrPanel to capture clips, you must complete a few steps:

1. You must decide whether you want to use the Windows NT interface (called *Panel Control*) to capture and play clips, or if you want to use an external device to control your Profile system. To select a controller, see "Selecting a Controller" on page 161.

2. You need to configure the playback and record JPEG and MPEG channels, audio channels and the VITC timecodes for your selected controller. To configure the controller, see "Configuring a Controller" on page 165.

3. You must set video crosspoints or connections. This means that you can select video inputs, codecs, and outputs. You can also choose to bypass codecs. See "Selecting Video Crosspoints" on page 175.

4. You can select timecode panel display, which timecode generators to use, select drop-frame timecode, and also set timecode crosspoints—inputs, generators, and outputs. See "Setting Timecode" on page 177.

For information on how to start and close VdrPanel, see "Starting and Closing Profile Applications" on page 31.

The VdrPanel window is shown in Figure 76. By default, the VdrPanel window appears automatically at power-up, unless you log in manually. You display all available panels in the VdrPanel window—up to eight with MPEG. Each panel is dedicated to one video channel.
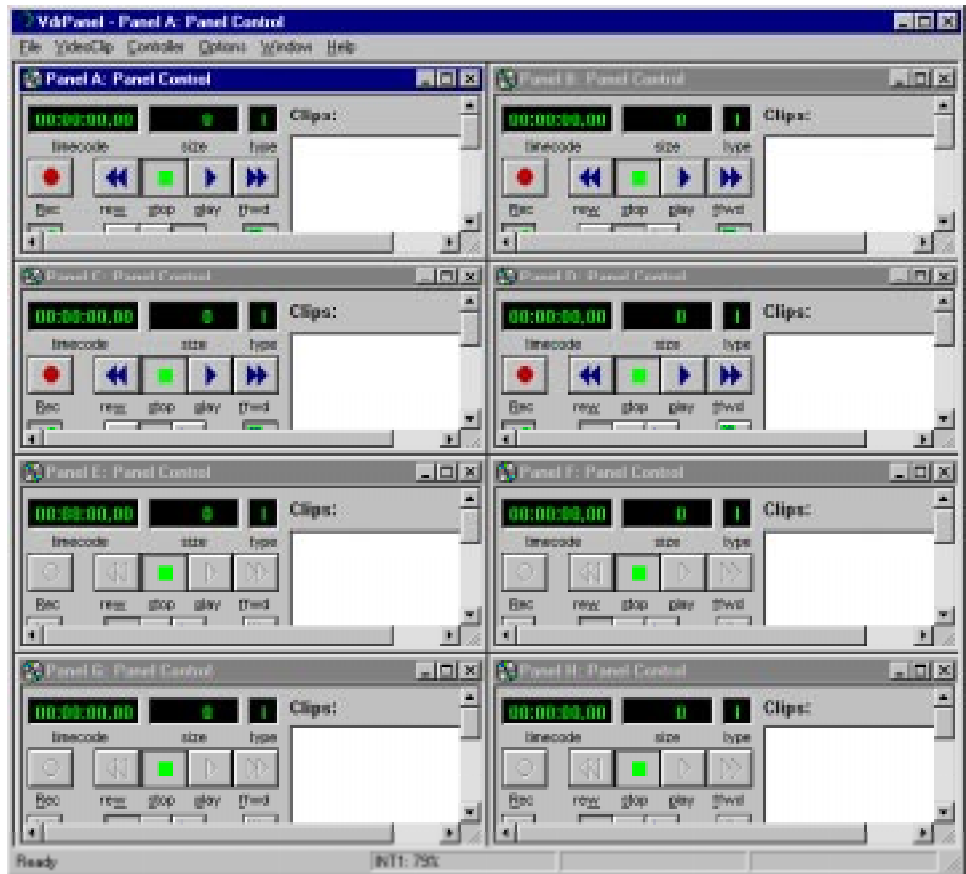
Figure 76. VdrPanel window

Selecting a Controller

Before you can use a video channel, you must first configure it to use a controller. The default controller is Panel Control. Panel Control specifies control from the Windows NT user interface and no communication port selection or additional configuration is necessary.

Other controller choices allow you to select serial control protocols and require an external device and additional setup, such as selection of a serial communications port or specifying clip length for BVW-type controllers. The

Comm Port dialog box appears automatically the first time you select a Louth, Odetics, or BVW controller (see "Selecting a Communications Port" on page 163).

> *NOTE: The* **Controller | Manage Archive** *menu command is available under special circumstances in Louth Automation. Contact your Tektronix representative for more information.*

To select a controller:

1. Click a panel to make it active.

2. Choose **Controller | Select** to open the Controller Setup dialog box (Figure 77).

3. Select the controller for the channel, such as **Louth Automation**.

4. Click **OK**.
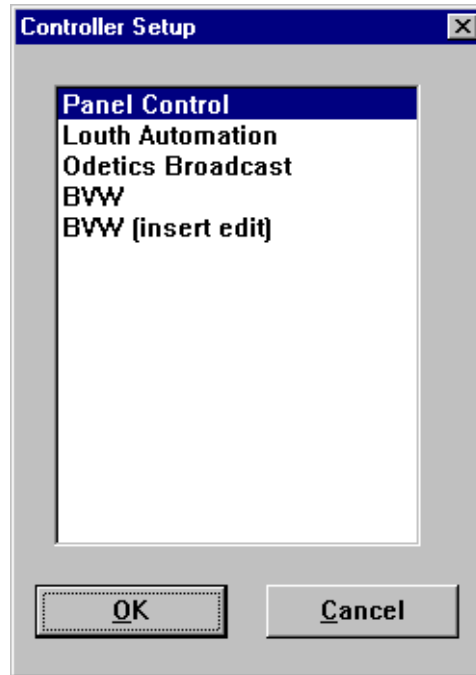
Figure 77. Controller Setup dialog box

Selecting a Communications Port

To select a serial communications port for an external controller:

1. Click a panel to make it active.

   NOTE: Other than for Panel Control, the **Comm Port** *dialog box appears automatically the first time you select a controller.*

2. Choose **Controller | Comm Port** to open the Comm Port dialog box. An example of this dialog box is shown in Figure 78.
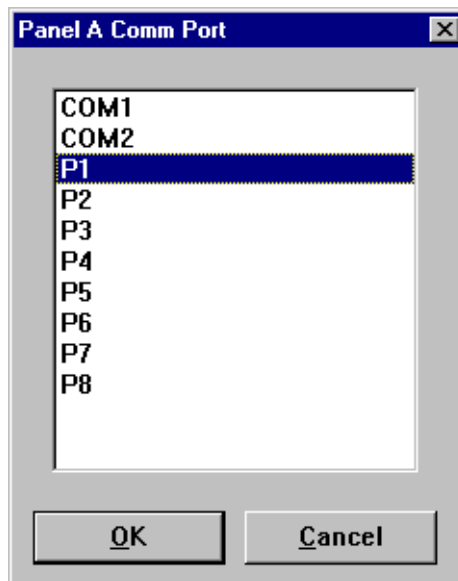
Figure 78. Comm Port dialog box

   NOTE: Ports P1 through P8 are available on the RS-422 Connector Panel. COM1 and COM2 are available on the unit's back panel (RS-232 DB-9 connectors). Any P ports used by VdrPanel should have the DIP switches set to **Device** *(DIP switch must be down).*

3. Select a serial communications port, such as **P1**.

4. Click **OK**.

Selecting Clip Length (BVW Only)

If you have chosen a BVW controller, you can specify clip length by setting mark in and mark out points:

> *NOTE: The Set Clip Marks (clip length) dialog box shown here will not appear unless the panel controller is a BVW controller. This is not the same as setting clip length while in Loop or Bounce mode.*

1. Click a panel to make it active.

2. Choose **Controller | Clip Length**. The Set Clip Marks dialog box appears (Figure 79).
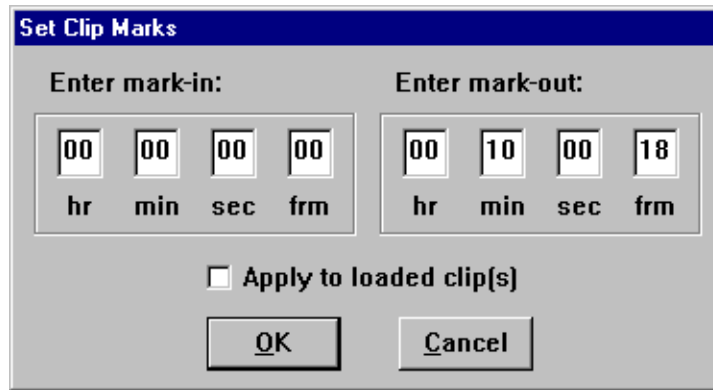
Figure 79. Set Clip Marks dialog box

3. Enter the mark-in and mark-out points by specifying the hour, minute, second, and frame settings. This applies to future clips only, unless you perform step 4.

4. Click **Apply to Loaded Clip(s)** if you want the mark-in and mark-out points to apply to existing clips as well as future clips.

5. Click **OK**.

Configuring a Controller

To configure the playback and record JPEG or MPEG channels, audio channels and the VITC timecodes for the selected controller:

1. Click the panel to make it active.

2. If any clips are loaded in the panel, choose **VideoClip | Eject All Clips.** You cannot configure a panel with a controller if any clips are present in it.

3. Choose **Controller | Configure** to open the Profile Options dialog box for the selected panel. Figure 80 illustrates the standard Profile options with an example configuration selected; Figure 81 illustrates the Profile Options dialog box for BVW [insert-edit], also with appropriate selections shown.

4. Click on the appropriate video, audio, and timecode resources for your selected controller. Use the scroll bars, if necessary, to see more resources.

    NOTE: Recording format depends on the selected video resource, either JPEG or MPEG Rec.

5. Click **OK**.
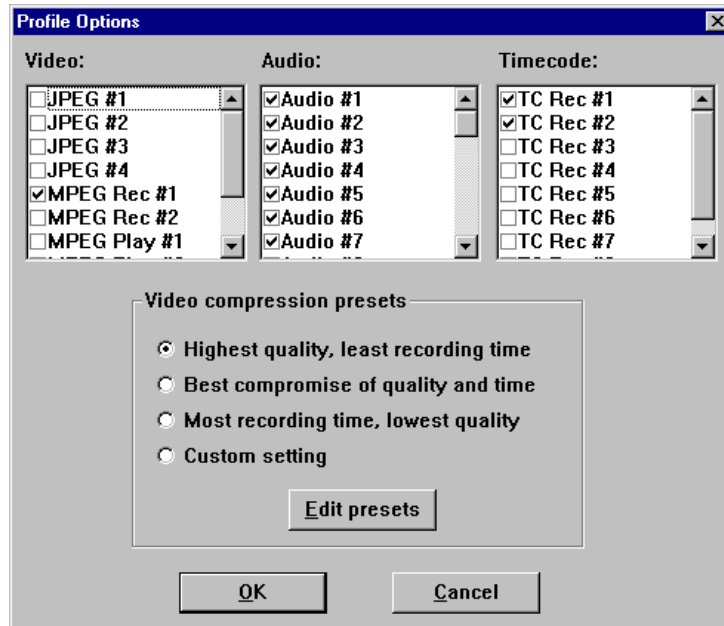
Figure 80. Profile Options dialog box
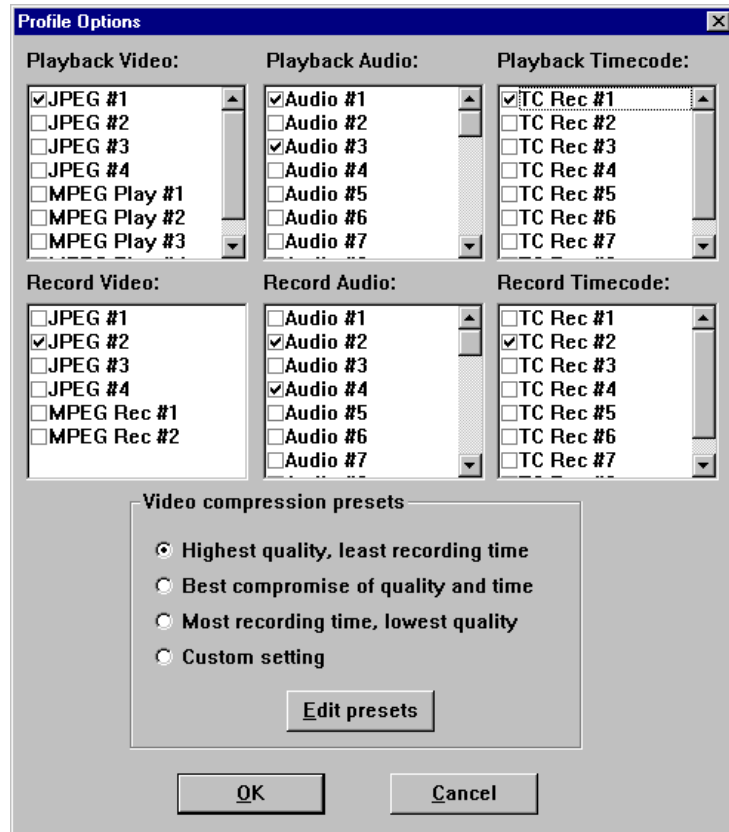
Figure 81. Profile Options dialog box (BVW [insert-edit] only)

Setting Compression Presets

The Profile Options dialog box lets you select a video compression preset and edit the preset values.

1. Click the desired compression preset. The options range from highest quality, which uses the most disk space and records less material, to the lowest quality, which uses much less disk space and records more material. A custom setting is also available.

2. Edit the preset values. Refer to Table 8 for the JPEG factory-set preset values and to Table 9 for the MPEG values. To change the values, click **Edit Presets** to open the Edit Compression Preset**s** dialog box shown in Figure 82. You can change the values of the presets, if desired. Select the preset in the **Preset Name** box, change the values under **JPEG** or **MPEG**, and then click **OK**.

Table 8. Factory set values for JPEG compression presets

Preset Name	525/60 Standard			625/50 Standard		
	Min Lum Q	Max Chroma Q	Bytes/Field	Min Lum Q	Max Chroma Q	Bytes/Field
Highest quality	0.75	60.00	100000	0.75	100.00	120000
Best compromise	0.75	60.00	75000	0.75	100.00	90000
Most recording time	0.75	60.00	50000	0.75	100.00	60000
Custom setting	5.00	5.00		5.00	5.00	

3. For JPEG settings:

   - **Min Lum Q** sets the minimum compression that can be applied to luminance in a field to meet the target data rate, typically 0.75, which is also the lowest rate.

   - **Max Chroma Q** sets the maximum compression that can be applied to chrominance in a video field to meet the target data rate (typically 60).

   - **Fixed Q** sets a fixed picture quality and ignores variation in field size. Use this mode for critical multigeneration work. When **Fixed Q** is selected, the other fields become fixed as **Lum Q** (fixed luminance compression) and **Chroma Q** (fixed chrominance Q). Useful starting values for **Fixed Q** and **Chroma Q** are 5.00. Verify that there is sufficient available data rate headroom before using **Fixed Q** mode. The **Bytes per Field** target attempts to meet the Lum and Chroma goals. With **Fixed Q** mode, **Bytes per Field** can increase beyond the system bandwidth, causing interference with other channels.

   - **Bytes per Field** is the target compression rate. Not every field requires the target rate, it is simply the average rate the disk recorder tries. The higher the rate, the better the picture detail. The actual **Bytes per Field** depends on the picture complexity, **Min Lum Q**, and **Max Chroma Q**. The algorithm dynamically changes **Min Lum Q** and **Max Chroma Q** to make the field size meet the target unless **Fixed Q** is selected.

Table 9. Factory set values for MPEG compression presets

Preset Name	Bit Rate (Mb/sec)	P Pictures per GOP	B Pictures per I/P	Chrom	Open GOP
Highest quality	24	5	2	4:2:2	No
Best compromise	15	5	2	4:2:2	No
Most recording time	4	5	2	4:2:0	No
Custom setting	4–44	2	2	4:2:0	Yes

4. For MPEG settings:

    -   Select **4:2:2** or **4:2:0** chroma sampling.

    -   **# P per GOP** is the number of P pictures (predictive pictures) in a group of pictures (GOP).

    -   **# B per I/P** is the number of B pictures (bidirectionally predictive pictures) for every I-frame or P picture. B pictures improve compression efficiency.

    NOTE: Placing zeros in both # P per GOP and # B per I/P boxes forces pictures to be I-frame only.

    -   **Open GOP** is a group of pictures that has a B picture as its last picture type for the next I-frame, such as IBBPBBPBBI, and so on. An Open GOP depends on the next GOP's anchor to define its last B picture.

    -   **First encoded line** is the number of first encoded line of video. Lines in a 525 system are in the range 21–260; 625 lines are in the range 7–310.

    -   **Last encoded line** is the number of the last encoded line of video.

    -   Bit rate in megabits per second. The higher the bit rate, the higher the video quality, though more disk space is used. In other words, the higher the video quality, the fewer hours of video you can store on disk.

5. Click **OK**.
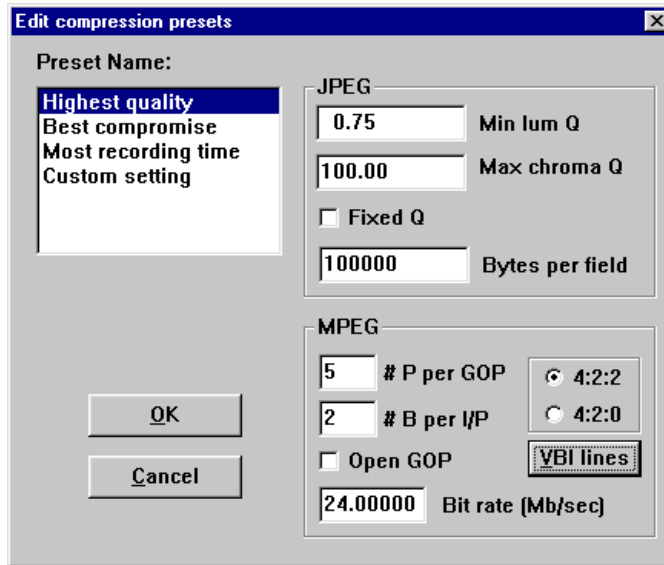
Figure 82. Edit Compression Presets dialog box

Selecting Vertical Blanking Interval Storage Lines

The MPEG section of the Edit compression presets dialog box has a button labeled **VBI lines** (see Figure 82). This button opens the Vertical Blanking Interval Storage dialog box (see Figure 83) which allows you to select from one to three lines in the vertical blanking interval (VBI) that will *not* be compressed with the video data, but will be stored without being encoded to avoid losses. This is desirable for uses such as closed captioning which would be seriously degraded by losses incurred at lower bit rates.

The Compress VBI checkbox at the top forces all the lines in the VBI to be compressed. The other checkboxes allow you to select up to three of the Luminance or Chrominance lines.
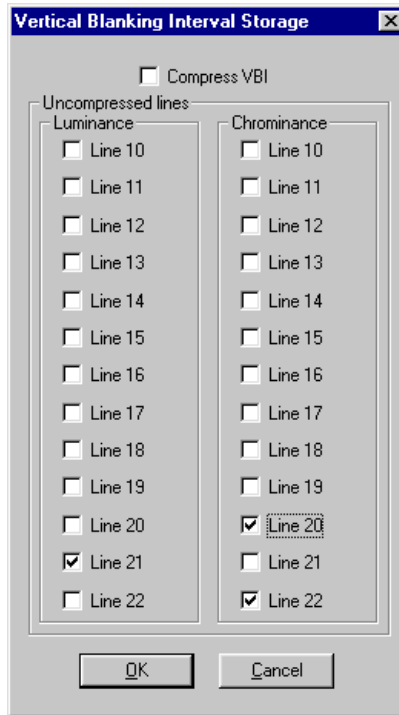
Figure 83. Vertical Blanking Interval Storage dialog box

Setting up BVW [insert edit] Emulation

This procedure sets up a panel to emulate a Betacam. Refer to the manual for your hardware controller device to set up Super-Edits or BVEs.

> *NOTE: This procedure requires access to two control ports. Close a panel to free a control port for use with the BVW [insert edit] panel.*

1. Click within a BVW [insert edit] panel to select the panel. Refer to "Selecting a Controller" on page 161 if you have not already selected BVW [insert edit] as the controller for this panel.

NOTE: If you do not select BVW [insert edit] for the panel, insert edit operations are not properly executed. The channel can be used as a source deck, or be acceptable for remote control systems, such as the Ash-Vale slow-motion controller, that do not use EditOn commands.

2. Choose **Controller | Configure** to open Profile Options (see Figure 80 on page 167).

3. Select two unused video codecs: one for **Playback Video**, and one for **Record Video**. For example, use **JPEG #3** for **Playback Video**, and **JPEG #4** for **Record Video**. Use **Controller | Configure** with the other panels to assure the codecs are not in use.

4. Select two pairs of audio channels. For example, select **Chan #9** and **Chan #11** for the **Playback Audio** and **Chan #10** and **Chan #12** for the **Record Audio**. Audio channel pair selection must follow these rules:

   - The playback/record audio channel pair must be sequentially numbered. For example, **Chan #1** and **Chan #2** or **Chan #14** and **Chan #15**.

   - The playback/record pair must be with the same channel group. Channels are grouped as sets of four: **Chan #1** through **#4**, **Chan #5** through **#8**, **Chan #9** through **#12**, and **Chan #13** through **16**.

   - The playback is assigned to the first selected codec in the pair, record is assigned to the second selected codec in the pair. For example, playback assigned to **Chan #14** and record assigned to **Chan #15**.

   NOTE: There must be two audio channels assigned for each audio track to be recorded.

5. Select two pairs of timecode. For example, select **TCREC #5** and **TCREC #7** for the **Playback Timecode** and **TCREC #6** and **TCREC #8** for the **Record Timecode**.

6. If any other selections are highlighted, click to deselect them.

7. Select the video compression to be applied; see "Setting Compression Presets" on page 168 for more information on video compression and the presets.

8. Click **OK**.

9. Choose **Controller | Comm Port** to open the Communication Port dialog box (see Figure 78 on page 163).

10. Select the RS-422 communication port to be used for the edit controller—for example, **P3**. The **Port** name is the same as the name on the RS-422 breakout box.

11. Click **OK**.

12. Verify the external connections:
    - Source audio channels are connected to the inputs for the audio channels assigned as the **Record Audio**.
    - Audio outputs from the disk recorder are connected to the audio channels assigned as the **Playback Audio**.
    - Edit controller is connected to the assigned **Port**. Refer to the device's installation manual.
    - DIP switch on the breakout box is set to Device for the RS-422 Port. Refer to the breakout box installation manual.

    NOTE: Insert edits for MPEG clips using the BVW or BVW [insert edit] controllers are not possible unless the clip is I-frame only. An inset edit is accomplished by over-recording previously recorded portions of video or audio material.

Setting Louth Modes

If you use Louth Automation, you can set a panel to Louth modes. Normally, when a clip is cued, a freeze or confidence frame appears on the monitor instead of a regular video input feed. In Louth switcher mode, you do not see a confidence frame: you see video input from the feed until you play the clip. When the clip is done playing, you immediately see the regular video input again.

Without Louth end mode, you may see a few fields of a following clip, even if you don't intend to play it. Louth end mode ensures that after playing a clip in a list, timecode freezes at the first frame of the next clip in that list.

NOTE: Louth menu commands are available only when the panel controller is set to Louth Automation.

To set a panel to Louth switcher mode:

1. Click the panel to activate it. The panel controller must be Louth Automation. For information on how to set the controller to Louth Automation, see "Selecting a Controller" on page 161.

2. Choose **Options | Louth Switcher Mode**. A check mark appears next to Louth Switcher Mode in the Options menu to show that it is activated.

3. To return the panel to normal mode, choose **Options | Louth Switcher Mode** again.

To set a panel to Louth end mode:

1. Click the panel to activate it. The panel controller must be Louth Automation. For information on how to set the controller to Louth Automation, see "Selecting a Controller" on page 161.

2. Choose **Options | Louth End Mode**. A check mark appears next to Louth End Mode in the Options menu to show that it is activated.

3. To return the panel to normal mode, choose **Options | Louth End Mode** again.

Selecting Video Crosspoints

A video crosspoint shows the connection between a video input and output, with a JPEG codec, MPEG encoder, or MPEG decoder between.

- Video inputs (top-left corner) represent video input connectors on the back panel. For example, video inputs can be connected to JPEG codecs or MPEG encoders for recording onto disk, or connected to video output for display.

- Video outputs (top-right corner) represent video output connectors on the back panel. For example, video outputs can be connected to JPEG codecs or MPEG decoders for playback of recorded material from disk or to video inputs.

To specify video crosspoints:

1. In VdrPanel, choose **Window | Video Crosspoint** to open the dialog box. The green boxes indicate current connections. For example, a green box at the intersection of a **SDI-InA-J14** serial digital video board in slot J14 and a **Panel A: MPEG Rec #1** encoder connects the video signal from the back panel input labeled **Video I/O Serial Digital Component IN A** to an MPEG encoder.
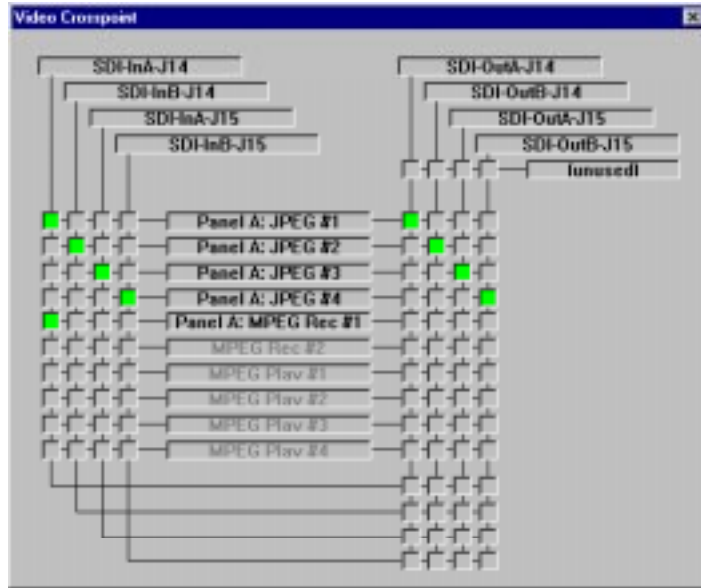
Figure 84. Video Crosspoint dialog box

2. To assign a crosspoint, click in the intersection boxes between a video signal and a JPEG codec, MPEG encoder, or MPEG decoder. The selection boxes turn green. You can also select a video signal, and while holding down the left mouse button, stretch a line to the desired resource.

   NOTE: Verify that you have the appropriate BNC connections on the rear panel.

⊠ 3. Click the **Close** button.

Setting Timecode

You can set timecode crosspoints, select drop-frame timecode, or select timecode panel display and generators.

Selecting How to Display Timecode on a Panel

The Timecode Setup dialog box enables you to set the timecode display and the timecode source on a channel to the values required for your application.

1. Click in a panel to select it.

2. Choose **Options | Select Timecode** to open the Timecode Setup dialog box. The Timecode Setup dialog box is divided into two groups: Display on Panel and Timecode Generator Settings.
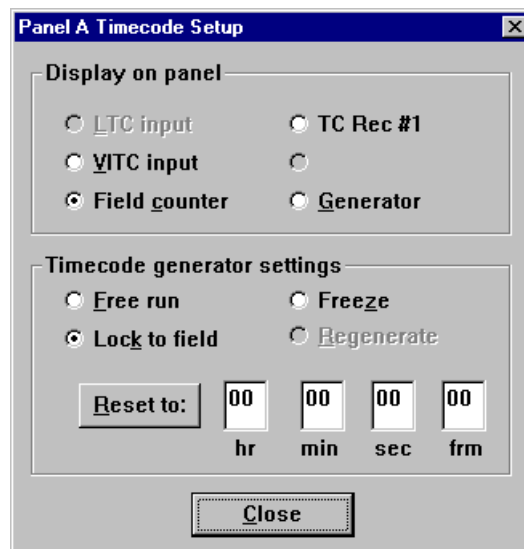
Figure 85. Timecode Setup dialog box

3. Select the timecode to be displayed on the panel from the Display on Panel group:
   - **LTC Input** is a separate signal input via the genlock card.
   - **VITC Input** is the timecode from the VITC input signal.

- **Compute from Field Number** calculates the timecode directly from the field number of the recorded video. New clips start at 00:00:00:00.
- **TC Rec #** displays the recorded timecode.
- **Generator** displays the timecode from the generator for the channel.

4. Set up the timecode generator used by the panel with the Timecode Generator Settings group:

- **Free Run** causes the timecode generator to continue to advance regardless of the current play or record mode of the panel.
- **Freeze** locks the timecode at the current value. The value does not advance with time nor with changes in the play or record mode of the panel.
- **Lock to Field Number** causes the generator to output a timecode locked to the current clip's timecode. When the panel is in stop, the value freezes. When the panel is in play or record, the timecode advances normally. During rewind or reverse shuttle, the timecode runs backward.
- **Regenerate** pertains to BVW controllers only. When the timecode position is changed to a new portion of the clip, and a record operation includes recorded timecode tracks (which happens with assemble edits from BVE and other controllers), the timecode generator is initialized to match the timecode read from the timecode track (VITC or LTC) before the record occurs.
- The **Reset To** button resets the timecode to the value entered in the box. The generator can be set to this value when **Free Run**, **Freeze**, or **Lock to Field Number** is selected.

5. Click **Close**.

Setting Timecode Crosspoints

The Timecode Crosspoint dialog box controls the connections of timecode signals within the Profile system.

- Timecode inputs (top-left corner) represent either LTC input connectors on the back panel or VITC input signals. Timecode inputs can be connected to timecode recorders for recording onto disk.

- Timecode generators (below timecode inputs) represent timecode generators used by the panels. Timecode generators can be connected to timecode recorders for recording onto disk or to timecode outputs.

- Timecode outputs (top-right corner) represent either LTC output connectors on the back panel, or VITC output signals. Timecode outputs can be connected to timecode recorders for playback of recorded material from disk, to timecode inputs, or to timecode generators.

1. Select **Window | Timecode Crosspoint** to open the Timecode Crosspoint dialog box. The green boxes indicate the current connections. For example, a green box at the intersection of **TCRec#1** and **GenlockVITC-InA-J16** indicates the timecode signal from the back panel input is recorded by timecode recorder #1.
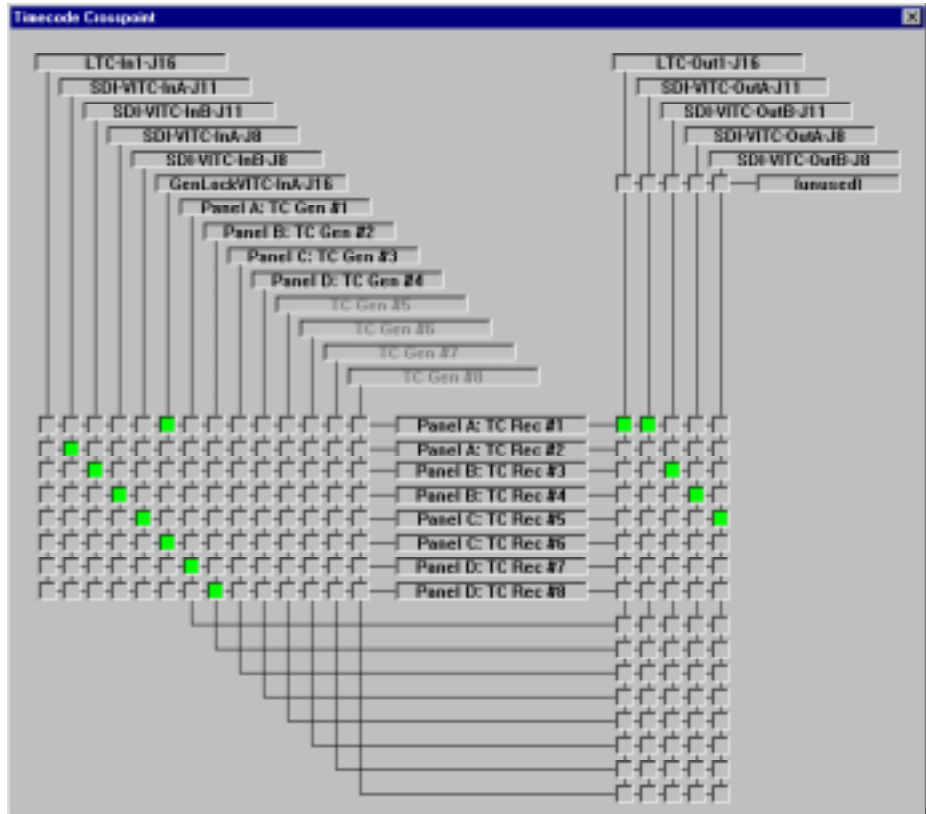
Figure 86. Timecode Crosspoint dialog box

2. To assign a crosspoint, click in the intersection between the signal and the recorder channel. The selections turn green.

> *NOTE: A timecode recorder must be used by a panel to be available as a timecode output.*

⊠ 3. Click the **Close** button.

> *NOTE: To release a timecode output for use by another application, click the box at the intersection of the output with the* **unused** *box.*

Setting Drop-Frame Timecode

In NTSC and 525/60, you don't actually get 30 frames per second; the real number is about 29.97 fps. Timecode usually assumes 30 fps. To account for the discrepancy, drop-frame timecode skips or drops two timecode values at the beginning of every minute except every tenth minute. This allows timecode to exactly match a real-time clock on 525/60 systems. This correction is not needed on PAL or 625/50 systems because the frame rate is exactly 50 fps.

To set drop-frame timecode:

• Choose **Options | Drop-Frame** or **Options | Non-Drop-Frame**.

> *NOTE: This setting applies to all open panels (channels).*

Panel Basics

In the VdrPanel application, you can display up to eight Panel dialog boxes at a time, one for each video channel. Each Panel dialog box has independent controls. A close-up view of a Panel dialog box is shown in Figure 87. A description of each Panel function follows.

> *NOTE: If the panels are stacked, choose* **Window | Tile Panels.**

The VdrPanel interface follows the same conventions as other Windows NT applications: the control menu box, title bar, menu bar, minimize and maximize buttons, mouse and keyboard all perform as expected. Refer to specific operating information about these items in the Windows NT manuals.
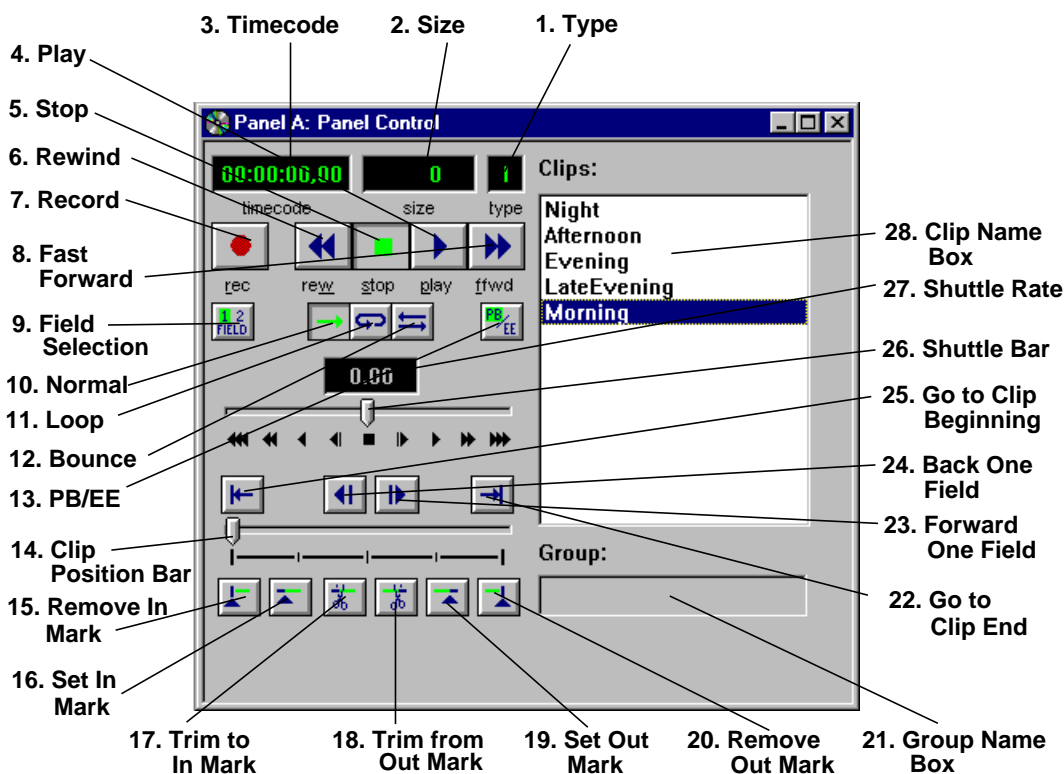
Figure 87. Panel dialog box

1. The **Type** box shows the type of pictures: **I** for I-frame, **B** for Bidirectional, and **P** for Predictive. **B** and **P** apply only to MPEG pictures. An I-frame picture or Intra-picture is analogous in JPEG and MPEG and so applies to both.

2. The **Size** box shows the number of bytes stored for the current field. The more detailed the picture, the higher the number of bytes. Target compression rate is set in the Edit Presets dialog box accessed from **Controller | Configure.** See "Configuring a Controller" on page 165.

3. The **Timecode** box is the current timecode of the selected clip. To configure timecode, refer to "Setting Timecode" on page 177. For example, when you use slow motion replays from several camera angles, the timecode can free run or freeze. Clicking on the **Timecode** box brings up the Go To Timecode

dialog box. Entering a new timecode value and clicking **OK** moves a clip to a specific timecode location. If there is no recorded timecode, VdrPanel displays a timecode calculated from the current position (00:00:00:00 or above).
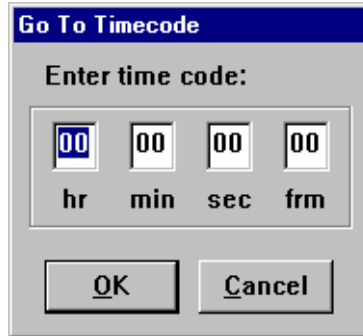
4. The **Play** button runs the selected clip at normal speed. If there are multiple clips in the clip list, **Play** starts with the first selected clip and proceeds through the list. **Normal**, **Loop**, and **Bounce** modes determine how the clip or clip list is played.

5. The **Stop** button halts the current **Play**, shuttle, or **Record** function.

6. The **Rewind** button shuttles the clip backwards to the beginning (the first available field or in mark) of the selected clip. Use **Go To Clip Beginning** or enter a timecode value in the **Timecode** box to move directly to the beginning without shuttling.

7. **The Record** button starts storing the incoming video as JPEG or MPEG streams and audio under the selected clip name. If no clip is selected, a default clip name (pound sign [#] followed by a number) is assigned. (See "Defining a New Clip" on page 190.) The record process continues until the disk decoder runs out of storage space or you click another command button, such as **Stop**. Recording does not start unless there is a video signal assigned to the selected panel and there is disk storage available.

8. The **Fast Forward** button shuttles the clip forward to the end. Use **Go to Clip End** or enter a value in the Timecode box to move directly to the end of the clip without shuttling.

9. The **Field Selection** button selects a one-field or two-field display during still mode. One-field display eliminates temporal artifacts, while two-field display provides the best vertical resolution.

10. The **Normal** normal plays the selected clip or clip list to the end, freezing on the last field of the clip or of the last clip in the list.

11. The **Loop** button plays the selected clip or clip list continuously, looping back to the beginning of the clip when the clip ends, or in the case of a clip list, looping back to the first clip in the list when the last clip ends. If you create a clip while in **Loop** mode, you are asked to enter a clip length in the form 00:00:00:00 (Hours:Minutes:Seconds:Frames). The **Record** operation will automatically stop at the specified timecode, thus protecting disk storage space.

12. The **Bounce** button plays the selected clip or clip list continuously, until at the end of the clip, it plays the clip in reverse, or in the case of a clip list, it plays to the end of the clip list, then reverses the sequence, playing all the clips in reverse order. If you create a clip while in **Bounce** mode, you are asked to enter a clip length in the form 00:00:00:00 (Hours:Minutes:Seconds:Frames). The **Record** operation will automatically stop at the specified timecode, thus protecting disk storage space.

13. The **PB/EE** (**Playback/E to E**) button determines the action during **Stop** or **Record**. If you select **Playback**, the recorded image is displayed as a still during **Stop**, and audio is silenced. If **E to E** is selected, the input signal is routed through to the display during **Stop** or **Record**.

14. The **Clip Position Bar** displays the relative position of the current frame within the current clip. For example, if the **Clip Position Bar** is to the far left, the frame is at the beginning of the clip; if it is at the far right, the frame is at the end. Click on the bar to activate it or press **j** or $\downarrow$.

15. The **Remove In Mark** button removes the in mark and restores the clip to its first available field.

16. The **Set In Mark** button sets the in mark for the current clip at the current timecode (you can also press **i**). When the clip is played, it starts at the in mark instead of the clip beginning; however, the portion before the in mark is not lost. Use **Remove In Mark** to remove the in mark. The in mark only affects this instance of the clip. If the clip repeats in the clip list or is used by another panel, this in mark is not automatically present.

17. The **Trim to In Mark** button removes the portion of the current clip preceding the in mark (you can also press **c**). This action affects all copies of this clip on all panels. The trimmed material is not retrievable. A warning message and verification prompt are displayed before the material is trimmed.

18. The **Trim from Out Mark** button removes the portion of the current clip following the out mark (you can also press **u**). This action affects all copies of this clip on all panels. The trimmed material is not retrievable. A warning message and verification prompt are displayed before the material is trimmed.

19. The **Set Out Mark** button sets an out mark for the current clip at the current timecode (you can also press **o** [not zero]). When the clip is played, it ends at the out mark; however, the portion after the out mark is not lost. Use **Remove Out Mark** to remove out mark. An out mark only affects this instance of the clip. If the clip repeats in the clip list or is used by another panel, the out mark is not automatically present.

20. The **Remove Out Mark** button removes the out mark and restores the clip to its last available field.

21. The **Group Name** box lists the name of the current clip list.

22. The **Go to Clip End** button jumps to the end of the current clip. You can also press **e**.

23. The **Forward One Field** button moves the current clip position forward one field. You can also press the → key. In addition, **Shift +** → advances the clip position 10 fields or 5 frames, and **Ctrl +** → advances the clip position 100 fields or 50 frames.

24. The **Back One Field** button moves the current clip position backward one field. You can also press the ← key. In addition, **Shift +** ← reverses the clip position 10 fields or 5 frames, and **Ctrl +** ← reverses the clip position 100 fields or 50 frames.

25. The **Go to Clip Beginning** button jumps to the beginning of the current clip. You can also press **t**.

26. The **Shuttle Bar** sets the shuttle rate. Use the mouse to drag the pointer to the desired shuttle rate (displayed in the **Shuttle Rate** box). When you click on the shuttle bar, the disk recorder enters shuttle mode. You can also press **h.**

27. The **Shuttle Rate** box displays the current shuttle rate. This number ranges from –16.00 to +16.00, with the positive numbers indicating forward motion, negative numbers reverse, and 0.00 still. This number can be set by clicking on the **Shuttle Rate** box to open the Shuttle Rate dialog box, entering a shuttle rate and clicking **OK**. You can also drag the **Shuttle Bar** to a desired position. If the shuttle rate is set faster than the maximum rate for the controller, the maximum rate is displayed.

> **Shuttle Rate**
>
> **Enter rate:** `0.0000`
>
> **O̲K**   **C̲ancel**
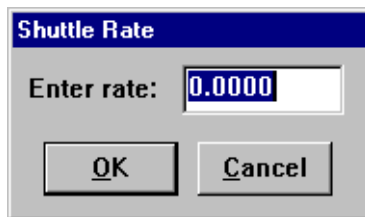
28. The **Clip Name** box lists the names of the clips in the current clip list.

The functions on the Panel dialog box can be accessed directly by clicking on the appropriate button with the mouse or by using the shortcut keys shown in Table 10. For example, pressing **Shift + R** starts recording in the active panel.

Table 10. VdrPanel shortcut keys

Shortcut Key	Function	Shortcut Key	Function
Shift + R	Record	**Ctrl** + →	Forward 100 Fields
w	Rewind	**Ctrl** + ←	Back 100 Fields
s	Stop	**j** or ↓	Jog controls
p or ↑	Play	**e**	Go to Clip End
f	Fast Forward	**h**	Shuttle controls
spacebar	Stop	**t**	Go to Clip Beginning
Ctrl + A thru **H**	Activate panel **A** thru **H**	**i**	Set Mark In
→	Forward 1 Field	**o**	Set Mark Out (not zero)
←	Back 1 Field	**c**	Trim to Mark In
Shift + →	Forward 10 Fields	**u**	Trim from Mark Out
Shift + ←	Back 10 Fields	**F1**	Start Help

Opening a Panel

If none of the panels are visible, here are the steps to open a panel:

1. Choose **Window | Open Panel**. The Open a Panel dialog box appears (Figure 88).
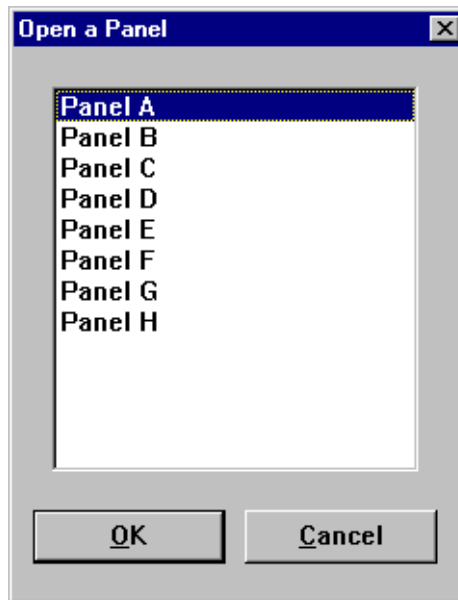
Figure 88. Open Panel dialog box

2. Select the panel you want to display, Panel A through H. Only panels that are not currently open appear in the dialog box. You can also press **Ctrl + A** through **Ctrl + H** to activate panels A through H.

3. Click **OK**.

Making a Panel Active

To make a panel active, such as Panel A, do either of the following:

• Click anywhere inside Panel A, if open.

Or:

• Choose **Window | 1 Panel A: Panel Control**.

Arranging Panels and Icons

If a panel is obscured by another panel, you can arrange the panels so that they are all completely visible. To arrange the panels in this way:

• Choose **Window | Tile Panels**.

If you have minimized the panels, you can arrange the icons with:

• Choose **Window | Arrange Icons**.

Viewing Record Capacity

The Record Capacity dialog box shows the amount of recording time remaining on the current media disk volume according to the current compression presets. To view the recording capacity:

1. Click a panel to make it active.

2. Choose **Window | Record Capacity**. A message box appears (Figure 89). In this instance, the message box shows the internal disks labeled *INT:*. The recording time remaining is represented in *Hours:Minutes:Seconds*. For more information on compression presets, see "Setting Compression Presets" on page 168.

Figure 89. Message box showing record capacity

3. Click **Close**.

Viewing an Audio Monitor for a Panel

The Audio Monitor allows you to monitor the level of an audio signal for a panel. To view a panel's audio monitor:

1. Click a panel to make it active.

2. Choose **Window | Audio Monitor**. The Audio dialog box appears, as shown in Figure 90. There are only two channels in this example, but up to 32 channels are possible if the necessary boards are installed.
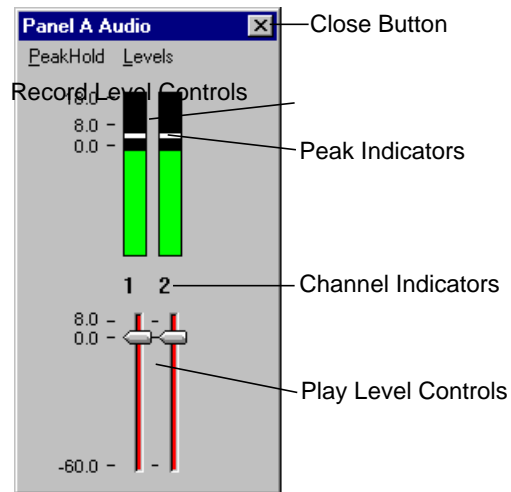
Figure 90. Audio Monitor dialog box

3. To turn peak hold on or off, choose **PeakHold | On** or **PeakHold | Off**. By default, peak hold is on. The peak indicators, the white bars in record level controls, indicates the audio peak you are currently recording.

4. To show the record level controls, choose **Levels | Show Record Level Controls**. To show play level controls, choose **Levels | Show Play Level Controls**. To hide the level controls, choose **Levels | Hide Level Controls**.

5. To work the record and play level controls independently, choose **Levels | Independent Controls**. To gang the controls, choose **Levels | Ganged Controls**.

6. Click **Close** (✕).

Using Clips

With VdrPanel, you can define, rename and delete a clip. You can load an existing clip or group of clips.

Defining a New Clip

There are two methods for defining clips:

- You can create and name an empty clip, then record to it (Name Clip First).

- You can start recording with an empty clip list, then rename the recorded clip to a meaningful name (Record Clip First).

Either method creates and stores a named clip. Use whichever method is most convenient for you. You can choose **VideoClip | Rename Clip** at any time to change a clip name.

Name Clips First

To define a clip by first naming the clip:

1. Click in a panel to select it.

2. Select **VideoClip | New Clip** to open the New Clip dialog box (Figure 91).

3. Select a drive from the **Drive** list. The number of drives available depends on your hardware.

4. Enter a clip name, up to 32 characters long. Spaces and uppercase characters are acceptable; however, uppercase and lowercase characters will not distinguish clip names.

5. Click **OK**. The new clip is added to the clip list for the selected channel.

6. If the **Loop** or **Bounce** buttons are pressed in the panel, a dialog appears asking you to specify the loop or bounce duration in the form *00:00:00:00*.

7. Click the **Record** button (in the selected Panel dialog box) to begin recording. The timecode and compression rate fields are updated.

   NOTE: A video input signal must be present on the selected channel for recording to start.

8. Click **Stop** to stop recording.

Figure 91. New Clip dialog box

Record Clips First

To define a clip by recording and then naming the clip:

1. Click a panel to select it.

2. If any clips are listed in the **Clips** box, choose **VideoClip | Eject All Clips** to clear the clip list.

3. Click the **Record** button in the selected Panel dialog box to begin recording. A clip named **#1** (or other number for a unique clip name) appears in the clip list for the panel.

4. If you are in **Loop** or **Bounce** mode, the clip is limited in size to either 1,000 fields or to the last clip length specified in the Loop/Bounce Length dialog box.

5. Click **Stop** to stop recording.

   If you repeat these steps to record additional clips, they are named sequentially—one higher than the previous clip. For example, **#2**, **#3**, and so forth.

6. Choose **VideoClip | Rename Clip** to open the Rename Video Clip dialog box (see "Renaming a Clip" on page 194).

7. Click on the clip to be renamed (such as **#1**).

8. Enter the new name in the **To** field. Spaces and uppercase characters are acceptable; however, uppercase and lowercase characters will not distiguish clip names.

9. Click **OK**.

Loading and Playing a Clip

To load and play a clip:

1. Click in a panel to select it.

2. If the clip is already loaded, select it from the Clips box and go to step 7.

3. If the clip is not loaded, choose **VideoClip | Load Clip** to open the Load Clip dialog box.

4. If the clip you want to load is on a different drive, select a different disk drive in the **Drive** box.

5. Select the clip to load—*Richter* in this example (see Figure 92).

6. Click **OK**.

7. Click the **Play** button in the selected Panel dialog box to begin playing the clip.

8. The **Normal**, **Loop**, and **Bounce** modes determine how play back occurs:

   - **Normal** mode plays the selected clip or clip list to the end, freezing on the last field of the clip or of the last clip in the list.

   - **Loop** plays the selected clip or clip list continuously, looping back to the beginning of the clip when the clip ends, or in the case of a clip list, looping back to the first clip in the list when the last clip ends.

   - **Bounce** mode plays the selected clip or clip list continuously, until at the end of the clip, it plays the clip in reverse, or in the case of a clip list, it plays to the end of the clip list, then reverses the sequence, playing all the clips in reverse order.
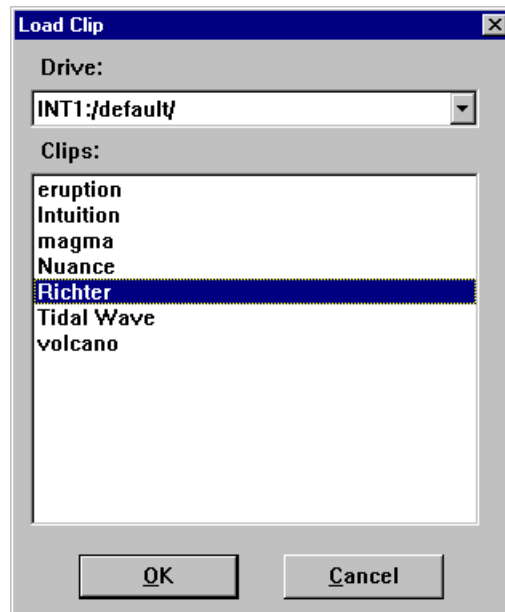
Figure 92. Load Clip dialog box

Renaming a Clip

To rename a clip:

1. Choose **VideoClip | Rename Clip**. The Rename Video Clip dialog box appears.
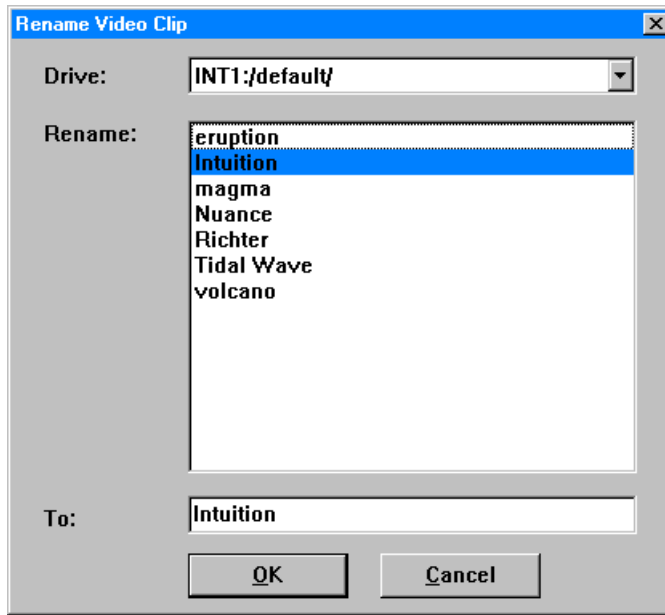
Figure 93. Rename Video Clip dialog box

2. If the clip you want to rename is in a different list, select it from the Drive box.

3. Select a clip from the Rename box. The clip name appears in the To box.

4. Edit the current name or delete the name and enter a new one. Clip names can have up to 32 characters. Spaces and uppercase characters are acceptable; however, uppercase and lowercase characters will not distiguish clip names.

5. Click **OK**.

Setting Clip Protection

To set clip read-only protection:

1. Choose **VideoClip | Set Clip Protection** and the Set Clip Protection dialog box appears.
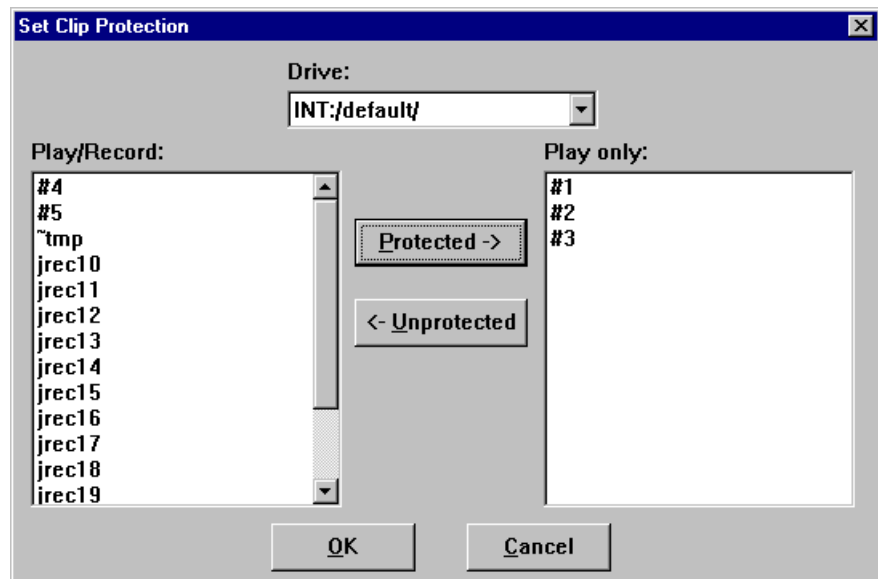
Figure 94. Set Clip Protection dialog box

2. If the clip you want to protect is in a different list, select it from the Drive box.

3. To protect a clip, select a clip in the Play/Record box and then click **Protected**. The clip is now protected as read-only.

4. To unprotect or unlock a clip, select a clip in the Read Only box and then click **Unprotected**. The clip is no longer protected.

5. Click **OK**.

Striping a Clip

Striping timecode with VdrPanel allows you to complete a striping process faster than real time. For example, on a traditional VTR, it might take you an hour to stripe a one-hour clip. But with VdrPanel, you can stripe a one-hour clip in a matter of minutes.

To stripe timecode on a previously recorded clip:

1. Choose **VideoClip | Stripe Clip** and the Stripe Timecode dialog box appears.
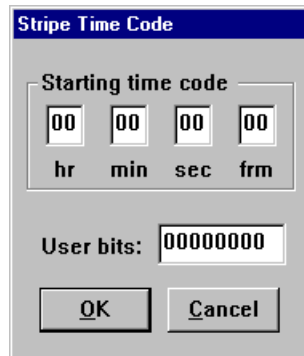
Figure 95. Stripe Timecode dialog box

2. Enter the timecode you want to start the clip with, in the form *00:00:00:00*.

3. Enter up to eight digits to mark the clip with user bits.

4. Click **OK** when complete.

Setting Long or Short Clip Names

Long clip names display the full path name of the clip, for example, *INT1:\default\clipname*. Short clip names display only the clip name. Clip names are shown in **Clip Name** box in a **Panel**.

To set the clip name to be short or long:

• Choose **Options | Display Short Name** or **Options | Display Long Name**.

NOTE: This setting only applies to the current panel. Each panel can have a different setting for clip name length.

Ejecting All Clips

To eject all clips:

1. Choose **VideoClip | Eject All Clips**.

2. All clips in the **Clips** box in the **Panel** are ejected immediately.

Deleting a Clip

To delete a clip:

1. Choose **VideoClip | Delete Clip** to open the Delete Clip dialog box.
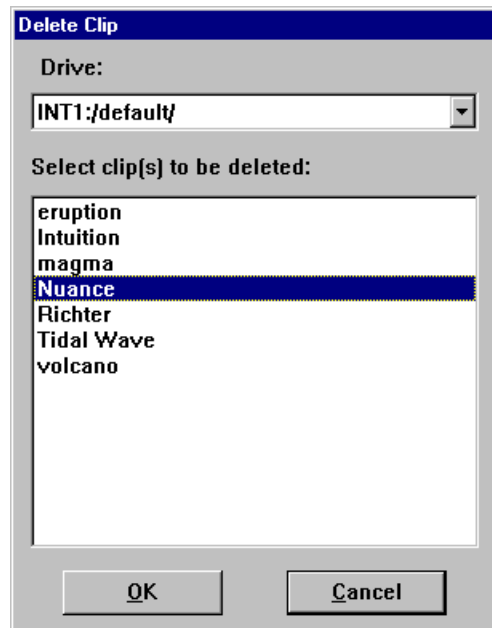
Figure 96. Delete Clip dialog box

2. If the clip you want to delete is on a different drive, select it in the **Drive** box.

3. Select the clip or clips you want to delete.

4. Click **OK** when complete. A message box appears telling you which file is being deleted.

Clip Lists

You can save and organize clips into lists (also called groups). You can load a saved group of clips. You can also save an existing group of clips under a different name. You can also create and later edit a list of clips.

Saving a Group of Clips in a Clip List

A clip list can be saved and loaded later. To save a clip list as a group:

1. Click within the specific Panel dialog box to select the panel where the clip list is currently displayed.

2. Choose **File | Save Group of Clips** and the current list of clips, as shown in the **Clips** box, is saved in the current group (*.grp*). If the clips have not been saved in a group previously, the Save Group of Clips dialog box appears.

Figure 97. Save Group of Clips dialog box

3. If you have not already saved the group, choose **File | Save Group of Clips As.**
   The **Save As** command enables you assign a different name to an already named group of clips, preserving the contents of the original group. The saved group can be loaded at any time with **VideoClip | Load Group**.

Playing a Clip List

To play a list of clips:

1. Click within the specific Panel dialog box to select the panel.

2. Choose **VideoClip | Load Group** if the clip list you want to play is not currently
   loaded.
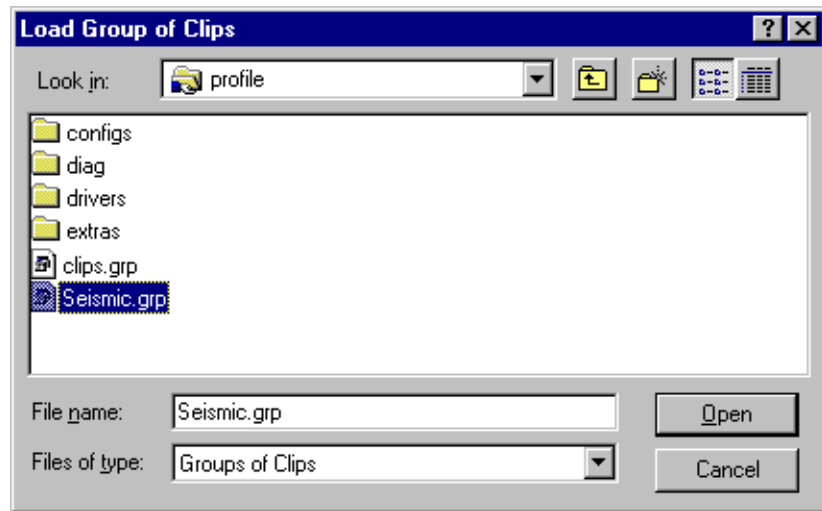
Figure 98. Load Group of Clips dialog box

3. Select the group and click **OK**. In this example, the group is *Seismic.grp*.

4. Click on the first clip in the clip list.

5. Click **Play** to start playing the clip list.

Editing a Clip List

To edit a clip list (group of clips):

1. Click a panel to select it.

2. Choose **Video Clip | Load Group** if the clip list to be edited was previously
   saved as a group. Select the group and click **OK.**

3. Choose **VideoClip | Edit Clip List** to open the Edit Clip List dialog box.
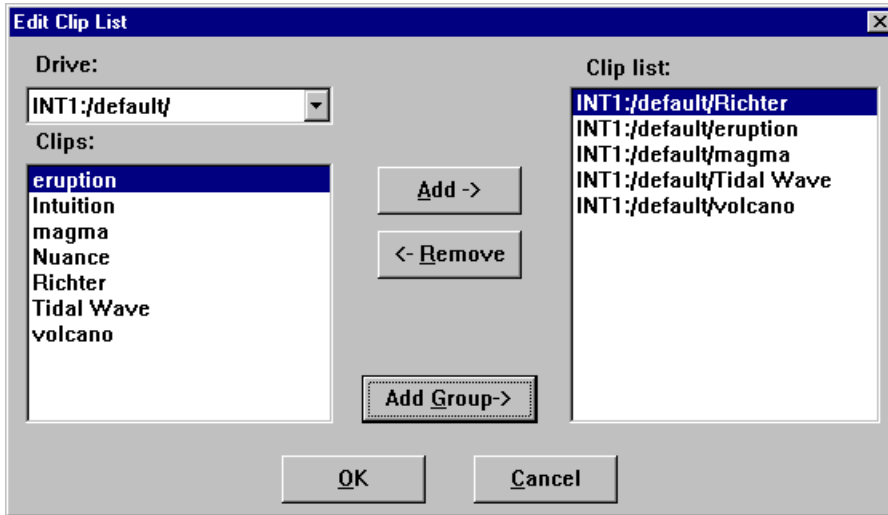
Figure 99. Edit Clip List dialog box

4. To add a clip to the current list loaded in step 1, select a clip in the Clips box and then click **Add**. It is added to the Clip List box (with a long clip name).

5. To remove a clip from the current list, select a clip from the **Clip List** box, and click **Remove** to remove the clip from the list. This does not delete the clip from disk—it simply removes a reference from the clip list.

6. To edit a different group, click **Add Group** to bring up the Load Group of Clips dialog box.

7. Click **OK** when complete.

Setting In and Out Marks in Clips

You can set a temporary beginning and ending to a clip by marking an in point, an out point or both. The video and audio data is not lost, however: it simply is not used when the clip is played. For example, if you set a mark-in point five seconds into a clip, it plays at the five second mark instead of at the beginning, but if you remove a mark-in, it returns the beginning of the clip to the actual clip start.

NOTE: Setting in and out marks applies to Panel Control only. It is **not** *recommended for other protocols.*

Setting Marks

To set a new in mark and out mark in a clip:

1. Click a panel to select it.

2. Create a clip, load a clip, or load a clip list and then select a clip from the list. The **Clip Position Bar** is all the way to the left and the **Timecode** is 00:00:00:00.

3. Use the transport controls, drag the **Clip Position Bar**, or click on the **Timecode** display to enter a timecode to locate the frame where you want to set the in mark.

4. Click **Set In Mark**. The **Timecode** display remains the same, but the **Clip Position Bar** jumps to the far left, indicating the mark-in point on the clip.

5. Use the transport controls, drag the **Clip Position Bar**, or click on the **Timecode** display to enter a timecode to locate the frame where you want to set the out mark.

6. Click **Set Out Mark**. The **Timecode** display remains the same, but the **Clip Position Bar** jumps to the far right, indicating the mark-out point of the clip.

7. Drag the **Clip Position Bar** to the beginning of the clip.

8. Click **Play**. The clip starts at the in mark and stops at the out mark.

Removing Marks

To remove in and out marks from a clip:

1. Select a clip containing marks in the **Clip Name** box.

2. Click the **Remove In Mark** button to remove a mark-in point and reset the clip beginning to the actual start of the clip.

3. Click the **Remove Out Mark** button to remove the mark-out point and reset the clip ending to the actual end of the clip.

Trimming Clips

You can trim a clip from the beginning of the clip to the in mark or from the out mark to the end of the clip. This action affects all copies of the clip on all panels. The trimmed material is not retrievable. A warning message and verification prompt are displayed before the function completes.

To trim a clip:

1. Select a clip with either in or out marks or both in the **Clip Name** box.

2. Click the **Trim to Mark** button to remove the portion of the current clip preceding the in mark.

3. Click the **Trim from Out Mark** button to remove the portion of the current clip following the out mark.

Setting Field Dominance for Marks

You can set field dominance so that a clip's mark-in and mark-out points occur at field 1 or field 2 of a given frame. By default, the field dominance is set so that either field 1 or field 2 can be a mark-in or mark-out point. To change field dominance:

1. Choose **Options | Field Dominance**. The Field Dominance dialog box appears (Figure 100).
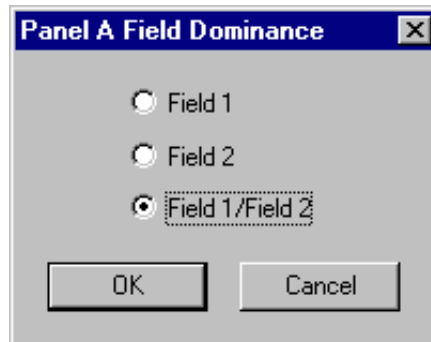
Figure 100. Field Dominance dialog box

2. Click **Field 1** or **Field 2**.

3. Click **OK**. The change takes effect immediately.

NOTE: Field dominance applies to JPEG clips only and the latest field dominance setting applies to all open panels.

Using the Profile Disk Utility

The Profile Disk Utility allows you to create new file systems on a Profile disk set (volume), format disks, set a new disk label, load the latest microcode from the disk manufacturer, or browse through the SCSI log. A Profile volume may consist of the internal disks in a PDR 100, PDR 200 or PDR 300, or it may be the external disks in a PDX 103/208 Disk Expansion Unit, or a PRS 200/250 RAID Storage System.

> *NOTE: You must login as* **administrator** *to use this utility.*

After starting the application, the Profile Disk Utility window appears. Most of the disk utility functions can be performed from this dialog box, as shown in Figure 101.
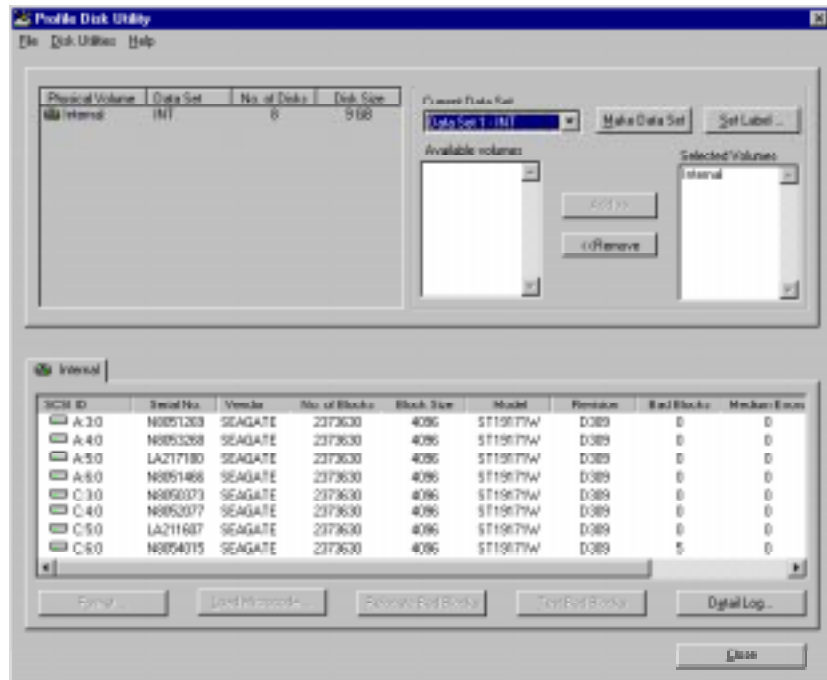
Figure 101. Profile Disk Utility window

> *NOTE: If you use the PDX103 Disk Expansion Unit with a PDR200 or PDR300, the 9 gigabyte hard drives in the video disk recorder are limited to the storage size of the 4 gigabyte hard drives in the PDX103.*

Creating a File System

A file system is created for all media disks before a Profile disk recorder is shipped from the factory. You can set up a file system any time you need to build or rebuild your system.

> *NOTE: If you are upgrading a PDR100 to version 2.1 or later of system software from version 1.4.XX or earlier, you must rebuild your file system.*

Information on the disks is shown in the upper-left panel of the Profile Disk Utility window—information such as physical volumes, data sets, number of disks, and disk size. Additional information is shown in the lower pane: SCSI IDs of each disk, serial numbers, vendor names, number of blocks, block sizes, model numbers, revision numbers, bad blocks, medium errors, read errors, and write errors.

A *volume* consists of a set of physical disks, such as an array of eight internal disks in a Profile disk recorder or in a PDX 208 Disk Expansion Chassis. A *data set* is a group of disks that can consist of one or more volumes. The data set name is the name that appears in VdrPanel. Media is striped across all disks in the data set.

To create a file system:

1. Select a data set from the **Current Data Set** box. For example, *Data Set 1 - int*.

2. Select the volumes to be included in the data set from the **Available Volumes** list and click **Add**. To remove volumes from the data set, select volumes from the **Selected Volumes** list and click **Remove.**

3. Choose **File | Make Data Set** or click **Make Data Set**.

Setting a Disk Label

To set a disk label:

1. Choose **File | Set Label** or click **Set Label**. The Set Label dialog box appears.
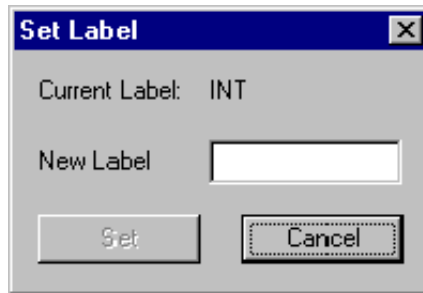
Figure 102. Set Label dialog box

2. Enter the new label name in the **New Label** box. The label name can have up to seven characters and can contain only alphanumeric characters (0–9, a–z, or A–Z), dashes (-), or underlines (_).

3. Click **Set** when complete.

Formatting a Disk Volume

Formatting disks organizes them so the Profile system can write data to and read data from them in an orderly way. All media disks come preformatted from the factory.

>>> *CAUTION: Formatting disks removes* **all** *media and other data from the disks. Format disks only when absolutely necessary.*

To format a disk:

1. Select the desired physical volume with the tab in the lower pane.

2. Select the desired disks.

3. Choose **Disk Utilities | Format Disk(s)** or click **Format**. The Format Disk(s) dialog box appears. If disks are non-Seagate, you can select a block size. The estimated time remaining to format the disk or disks is displayed.

4. Click **Format** on the dialog box to continue formatting the disks.
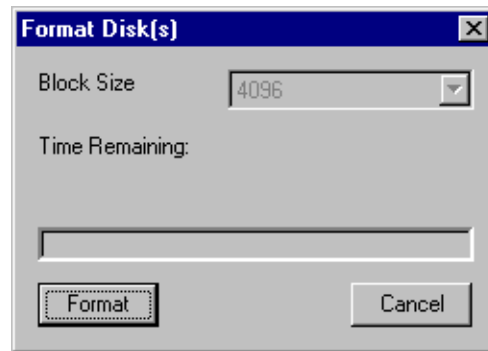
Figure 103. Format Disk(s) dialog box

Loading Microcode

To load microcode for your hard disks:

1. In the lower pane, select the drive or drives where you want to load microcode.

2. Choose **Disk Utilities | Load Microcode** or click the **Load Microcode** button to open this dialog box.
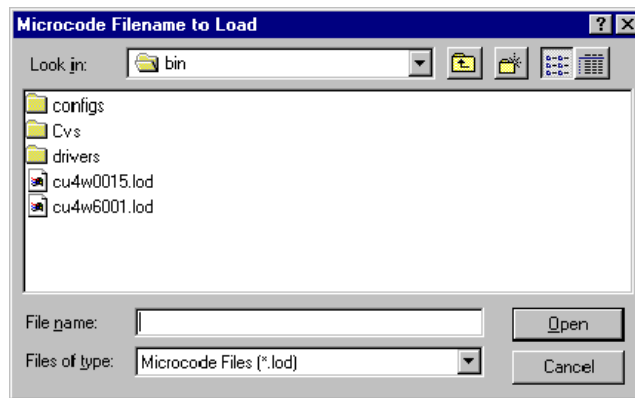
Figure 104. Microcode Filename to Load dialog box

3. Double-click on a filename or enter the name of the microcode (*.lod*) file in the Filename box and click **Open** to load the microcode (see Table 11).

NOTE: Before loading microcode, check what make of drive you have in the Vendor field of the lower pane in the Disk Utility window.

Table 11. Microcode update files

File Name	Disk Type
cu4w6001.lod	Seagate 4-gigabyte disk drives
cu9w6004.lod	Seagate 9-gigabyte drives
c9lp5724.lod	Seagate low profile 9-gigabyte drives
ibm9G_51.lod	IBM 9-gigabyte drives

Relocating and Testing Bad Blocks

The reason why bad block errors are reported is usually not because the physical block (cluster) is damaged. Often the reason is because when the system attempts to read a media file and for any reason it cannot read a block, it does not retry but simply repeats the last field and moves on to the next block.

> *NOTE: The following tests are nondestructive.*

Testing bad blocks determines whether a bad block error is really a physical problem with the disk or just a nonrepeatable read error that can be ignored. If the error is nonrepeatable, the block may be removed from the bad blocks list. Otherwise, the block will be reallocated.

To test bad blocks:

- Choose **Disk Utilities | Test Bad Blocks** or click **Test Bad Blocks**.

To relocate bad blocks:

- Choose **Disk Utilities | Relocate Bad Blocks** or click **Relocate Bad Blocks**.

> *NOTE: You must read the detail log (SCSI log) to view the results of these tests. See "The Detail Log" on 209.*

The Detail Log

The detail log (*scsi.log*) records the history of everything that happens on a disk and helps you track problems with disks. For example, when you relocate or test bad blocks, you must read the detail log to see the results.

To open and read the detail log:

1. Choose **Disk Utilities | Detail Log** or click **Detail Log**. The Detail Log dialog box appears.

2. Click **Close** when done checking the log information.
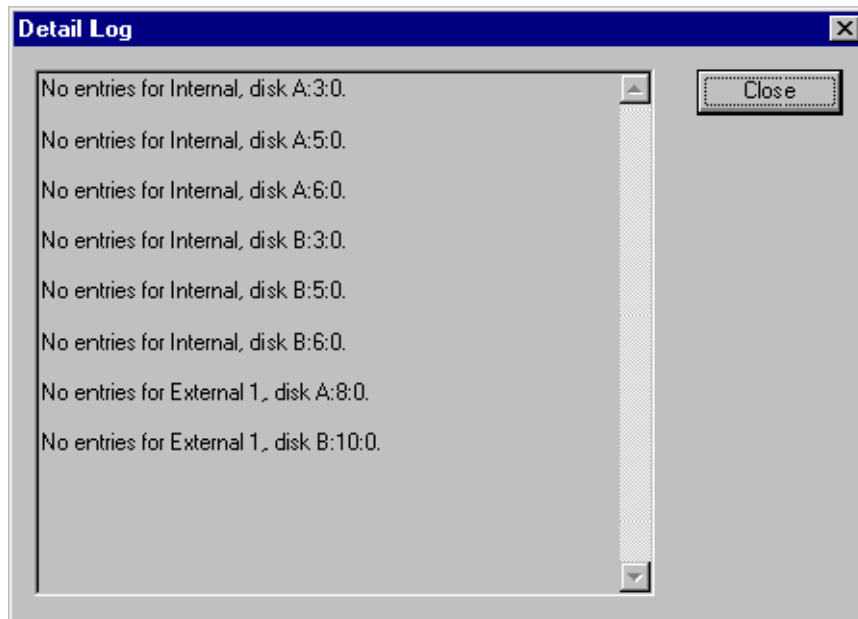
Figure 105. Detail Log dialog box

NOTE: **Scsi.log** *is a binary file; you cannot view it with WinTail. See "Viewing Profile Logs" on 211 for information about viewing other Profile logs.*

Chapter 5   Using the Profile Disk Utility

Using Profile Utilities

This chapter shows you how to read Profile logs with WinTail, capture Profile logs with the capture tool, assign Profile Protocol resources for RS-422 ports controlled by Profile Protocol and managed by ProLink, access a Profile system from a remote PC with PortServer, and how to manually stop and start the PDR Access Control service.

Viewing Profile Logs

You can view Profile system logs with the graphical log viewer WinTail. This log viewer allows you to see the end of a log file. To view any of the Profile system log files:

1. Double-click on the Profile Log shortcut icon on the Windows NT desktop or choose **Start | PDR Applications | Profile Log**. By default, the WinTail application views *profile.log*. WinTail automatically checks log files for updates every two seconds.
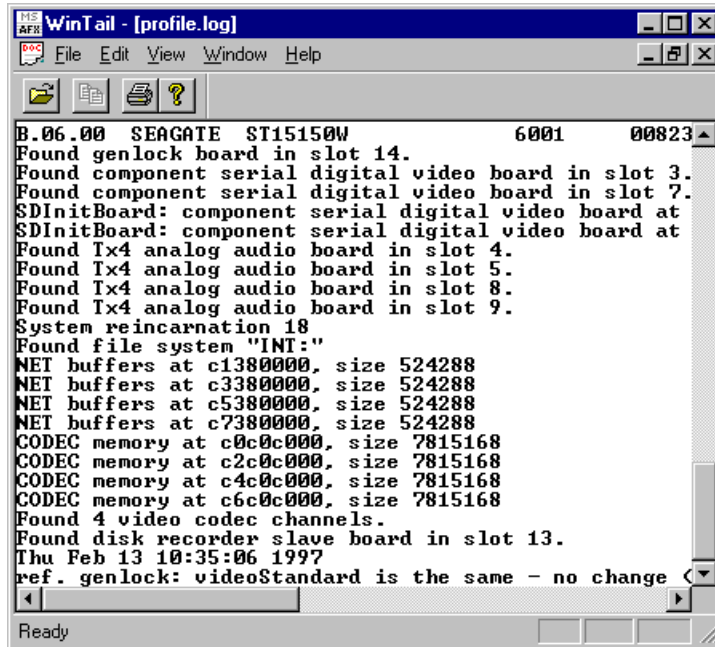
Figure 106. WinTail window

2. To view other logs, choose **File | Open**.

> *NOTE: Because it is a binary file, you cannot view* **scsi.log** *with WinTail. See "The Detail Log" on page 209 for instructions on how to view* **scsi.log***.*

You can view three sets of logs:

1. The PDR Access Control service records messages from the real-time processor into *profile.log*. As installed, the WinTail application reads this log file by default.

2. VdrPanel logs all RS-422 protocol messages for supported third-party protocols. Logging occurs to files *VdrPanel[ABCD].000* and *VdrPanel[ABCD].001* in the directory where VdrPanel is run. Logging has a timing resolution of 10 msec. Use a dedicated RS-422 logger for better resolution and accuracy.

Logging for each panel may be turned off by setting the value **MsgLogger** to **0** in these registry keys with the Windows NT registry editor **regedit**:

```
HKEY_LOCAL_MACHINE
  /SYSTEM
    /CurrentControlSet
      /Services
        /VtrService
          /Chan[ABCD]
```

***NOTE: Logger does not log duplicate replies for* BVW, BVW [insert edit] and Odetics** *for 61.0c CurrentTimeSense for Timer1, LTC, and VITC, and 61.0c StatusSense, nor for Louth for 30.05 PortStatusRequest and 30.10 SystemStatusRequest.*

3. VdrPort logs record all messages passed between Windows NT and the real time processor. The following information is logged:

- Direction:

  > indicates NT-to-video-processor
  < indicates video-processor-to-NT

- VDR port number (0–3)
- Tick count (msec since Windows NT booted)
- Message

The start of the VdrPort log file contains the date and time (*year/month/day hours:min:sec.msec*), and the equivalent tick count. Events are logged to two files: *VdrPortLog.000* and *VdrPortLog.001*.

Log Capture Tool

The Profile Log Capture Tool is used to capture Profile logs and package them in .zip format to be sent to Tektronix. To start the Log Capture tool, double-click the Log Tool icon on the Windows NT desktop, choose **Start | Run** and enter C:\profile\logstool.exe in the text entry field, or enter **start logstool** on a command line.

When you start the log capture tool, it compresses the current set of Profile logs and launches the log set selection screen (Figure 107). You can choose the current set of logs or one of the last four log sets captured.

Clicking the **Cancel** button cleans up any temporary files and exits the program. If you click **Cancel** while copying and compressing when the program is first started, the Current Logs selection will not be available.
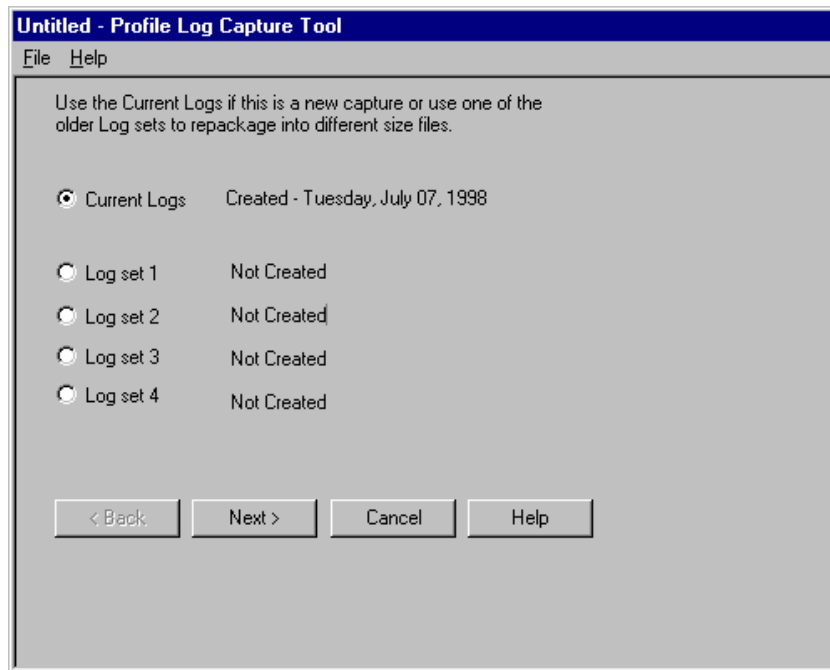
Figure 107. Log set selection screen

After choosing a log set, click the **Next** button to advance to the size selection screen (Figure 108). Choose one of these three sizes:

- 1.4 MB file size — Select this file size if you are using floppy diskettes to send the information to Tektronix.

- Single file

- Custom file size — enter a number in the field to specify the number of 100,000-byte blocks (minimum 2).

The single file and custom file size selections allow you to choose the file size that is most convenient for you to ftp or e-mail to Tektronix.

Untitled - Profile Log Capture Tool

File   Help

Select the size of file(s) to package the logs into.
For custom size 2 x 100,000 bytes is the smallest size allowed.

- ⦿ 1.4 MB file size

- ○ Single file

- ○ Custom file size   [2]   x 100,000 bytes

[< Back]   [Next >]   [Cancel]   [Help]
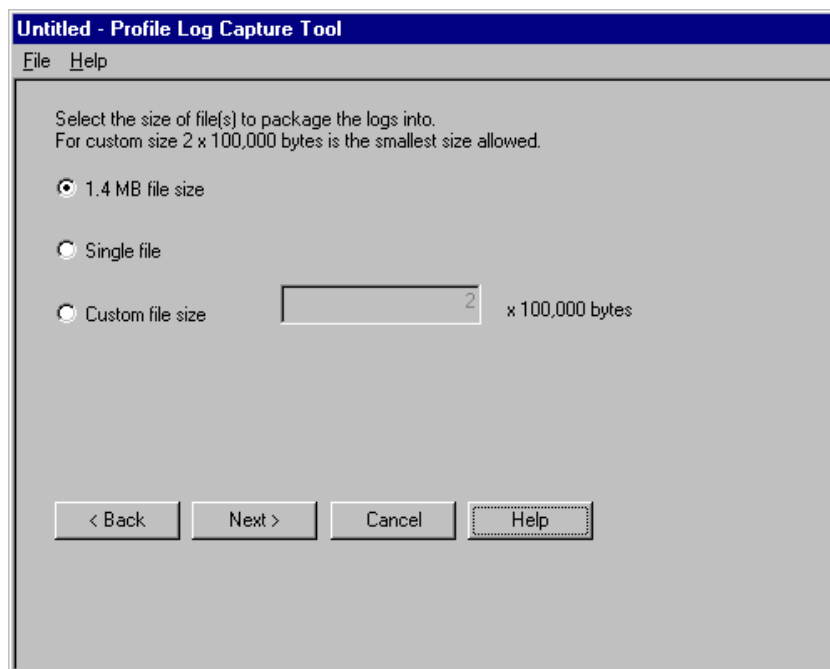
Figure 108. Size selection screen

Clicking the **Back** button returns to the log set selection screen if you want to change your log set selection.

The **Next** button completes the log capture and file sizing process, and advances you to the Log Tool Complete screen.

The Log Tool Complete screen displays the location of the ZIP files that were created from the log set that you selected. Carefully note the location of the files created, then click **OK** to exit the program.

> *NOTE: Clicking OK does not send any files to Tektronix, it merely ends the program. To send the files, you must copy them to floppy disk, or transmit them using ftp or e-mail.*

Untitled - Profile Log Capture Tool

File   Help

Send the following files to Tektronix Customer Support.

```
C:\profile\logs\archive\LOGS0707.000\PL07071.zip
C:\profile\logs\archive\LOGS0707.000\PL07072.zip
C:\profile\logs\archive\LOGS0707.000\PL07073.zip
C:\profile\logs\archive\LOGS0707.000\PL07074.zip
C:\profile\logs\archive\LOGS0707.000\PL07075.zip
C:\profile\logs\archive\LOGS0707.000\PL07076.zip
```

< Back   OK   Cancel   Help
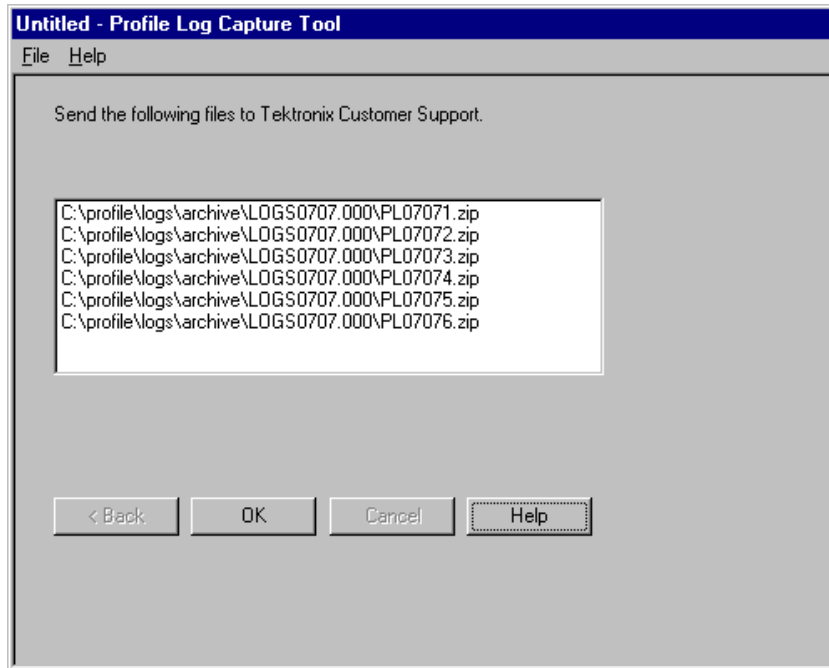
Figure 109. Log tool complete screen

Profile Protocol Resources

The Profile Protocol Resources utility lets you assign Profile resources such as inputs, outputs, and codecs, for use with ports controlled by Profile Protocol over an RS-422 connection and managed by ProLink. The PRC 100 is one example of a device which uses these ports.

Profile Protocol implements Named Configuration Space (NCS) as a mechanism to ease Profile configuration. Using NCS, an application can send one command, Open Port (10.01), with a parameter specifying a configuration file to use, and the Profile unit handles all the resource allocation and crosspoints specified in the configuration file. This frees the application from the task of allocating resources manually.

The Profile Protocol Resources utility provides a simple, graphical way of creating configuration files. It replaces previous Profile Protocol configuration tools such as the PRC 100 Configuration Utility (*prccfg.exe*), and configures all Profile resources, including MPEG encoders and decoders.

The following sections explain how to use the Profile Protocol Resources utility. You'll also find an explanation of the contents of a configuration file, and some sample files that you may find helpful if you need to modify files manually.

Using the Profile Protocol Resources Utility

The following instructions explain how to use the Profile Protocol Resources utility to create configuration files.

1. Double-click the Profile Protocol Resources icon to start the utility. A window similar to the one shown in Figure 110 appears.

   The available Profile resources are displayed in the window. Note that these resources will vary according to the features of each Profile system. For example, while JPEG codecs are available on all Profile systems, MPEG encoders are only available on some PDR 300 models, or on PDR 200 systems with MPEG upgrades.

   NOTE: Resources which are currently assigned to other Profile applications are displayed as Resource In Use in the Profile Protocol Resources utility. If you wish to assign these resources, exit Profile Protocol Resources, free the resources in the other Profile applications, then restart Profile Protocol Resources.
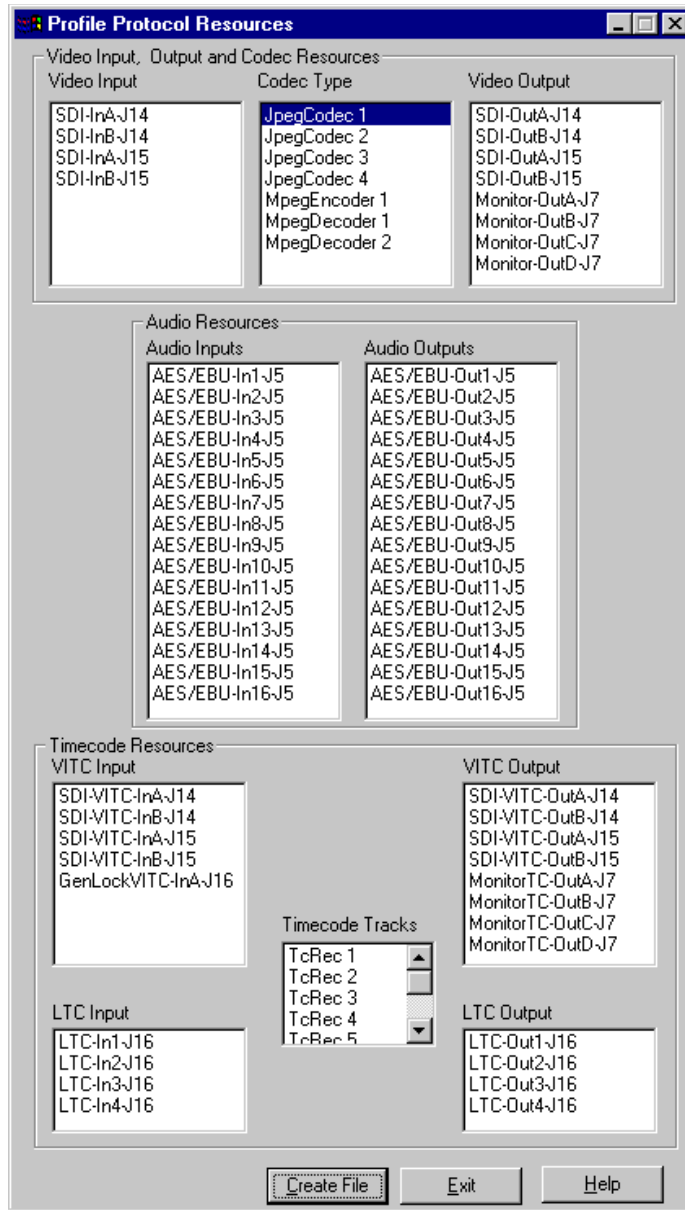
Figure 110. The main Profile Protocol Resources window

2. Select all the resources you wish to assign to the application that will control the channel (port) being configured. While you can select more than one audio input and output, you can only select a single codec or encoder, and thus only one video input. Similarly, you must assign only one VITC Input or one LTC Input, not both. If you wish to assign more than one video codec or encoder to a channel, or record both VITC and LTC timecode, refer to "Manually Editing a Configuration File" on page 221.

3. Click the **Create File** button to open the Save As dialog box.

4. Enter a file name that your application will use when it opens the port. The Cfile should be stored in the default *C:\profile\configs* directory, and must have a *.cfg* extension. For example, you must create *vtr1.cfg*, *vtr2.cfg*, etc. files for use with the PRC100.

5. Choose **OK** to write the configuration file.

6. If you selected a JPEG codec, a dialog box appears similar to the one shown in Figure 111. Select a compression setting for your recordings and click **OK**.

Configure JPEG 525 Line Compression

- ● 50000 Bytes/Field
- ○ 75000 Bytes/Field
- ○ 100000 Bytes/Field

OK
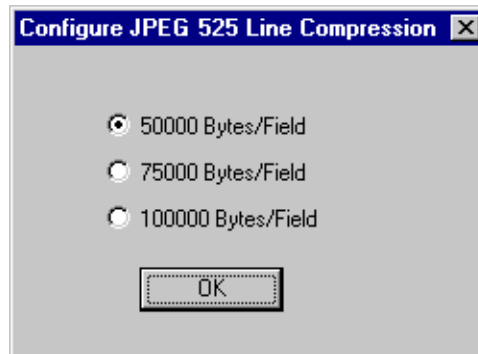
Figure 111. Setting JPEG compression

Refer to "Using VdrPanel" on page 159 for an explanation of these settings.

7. If you selected an MPEG encoder, a dialog box appears similar to the one shown in Figure 112. Make appropriate compression settings for your recordings and click **OK**.
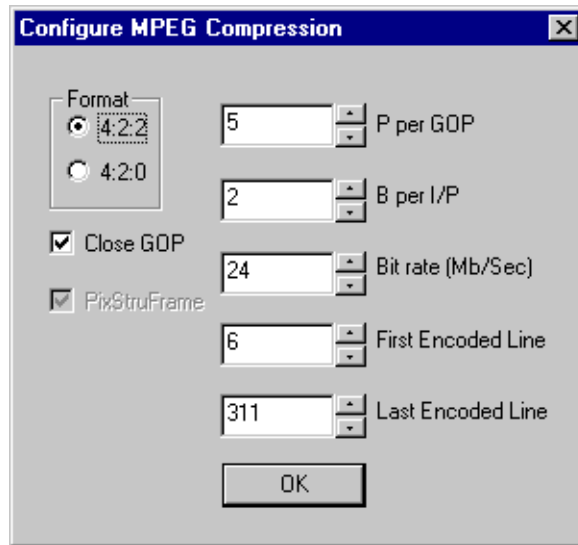
Figure 112. Setting MPEG compression

Refer to "Using VdrPanel" on page 159 for an explanation of these settings.

You have now completed creating a configuration file for your Profile Protocol application. Use this file when you open the desired port from the application, such as the PRC 100. You should create as many files as you require for your application.

Manually Editing a Configuration File

In some special cases, you may wish to manually edit a configuration file. For example, you may wish to assign more than one video codec for use with a channel.

You can use any text editor to make changes to an existing configuration file. Notepad will save your file in the required format. If you decide to use any other editor, such as WordPad, be sure to save the file as a text document (ASCII or txt) and use the *.cfg* filename extension if you change the name of the file.

Configuration files are simple text files, containing three types of lines. The lines are parsed on a column basis as follows:

• If column 1 contains anything besides a number from 0-9, the line is ignored as a **comment** line.

• If column 7 contains a "C" or "c", the line is treated as a **crosspoint** line.

• All other lines are treated as **resource** lines.

Both resource allocation lines and crosspoint lines share a similar format:

```
xx-yy[,][func1][func2]
```

> *NOTE: Although resource and crosspoint lines look similar, they have very different meanings. This is a frequent source of confusion and error. Make sure whether you are editing a resource line or a crosspoint line!*

Resource Lines

Resource lines allocate a resource for use by a port. The following is the column-by-column layout of resource lines:

- Column 1-2: resource type.

  Must be one of the following:

00	audio codec
01	JPEG codec
02	video input
03	video output
04	LTC input
05	VITC input
06	timecode generator
07	LTC output
08	VITC output
09	timecode recorder
10	audio output
11	video combiner (mix effect)
12	MPEG decoder
13	MPEG encoder

- Column 3: separator (-).

- Column 4-5: resource number.

  This specifies which resource of the specified type is desired. Resources of a given type are numbered starting at 0. To select the third timecode recorder, specify "02" in columns 4-5.

  For inputs and outputs spread across multiple cards, devices are scanned along the Profile EISA bus starting at slot 0. Viewed from the back of the Profile system, numbers increment from right to left. In a Profile system with two Serial Digital I/O cards, video input 00 represents the upper BNC connector on the rightmost Serial Digital card, while video input 03 represents the second BNC connector on the leftmost Serial Digital card.

In Profile systems with a mix of video I/O cards, the video cards are scanned in the following order:

- Serial Digital Component
- Serial Digital Component with Embedded Audio
- Component Analog
- Composite Analog
- Serial Digital Composite

For example, in a Profile system with two Serial Digital Component cards and one Analog Composite Input card, the Serial Digital inputs will be numbered 00 through 03, and the Composite input will be numbered 04, **regardless** of where the Composite card is placed.

• Column 6: optional separator (, or space).

This is mandatory if column 7 is meaningful, optional otherwise.

• Column 7: optional parameters.

For inputs, this must be an S (for Shareable). In addition, certain resources may specify additional parameters, starting in column 7. These parameters are read and assigned in the order given below.

- For JPEG codecs:

  goalsize (bytes/field), minimum luminance Q, maximum luminance Q, minimum chrominance Q, and maximum chrominance Q

- For MPEG encoders:

    bitrate, format, GopEnd, iPerGOP, pPerI, bPerIP, PixStruct, FirstEncodedLine, and LastEncodedLine

    If you don't specify parameters, the default values are used. You can override the defaults in the *.cfg* file, or by using the MPEG API calls. Acceptable values for these parameters are shown in Table 12.

Table 12. MPEG Encoder Parameters

Parameter	Acceptable Values	Default
bitrate	Mb/s, between 4000000 and 50000000	18000000
format	Select 4:2:2 or 4:2:0 (do not use the colons in the file entry).	422
GopEnd	0=GopOpenEnd 1=GopClosedEnd	1
iPerGOP	Reserved. Must be 1.	1
pPerI	The number of P pictures per I picture, from 0 to 5.	5
bPerIP	The number of B pictures per IP picture, from 0 to 2.	2
PixStruct	Reserved. Must be 0.	0
FirstEncoded Line	May include VBI lines. See release notes.	21 (525/60) 23 (625/50)

Table 12. MPEG Encoder Parameters

LastEncoded Line	The number of total encoded lines is the difference between the first and last encoded lines, and must be a multiple of 16. In 525/60 total encoded lines is typically 240; in 625/50, total encoded lines is typically 288. The last encoded line must not exceed 263 (525/60) or 311 (625/50). The first encoded line is inclusive, meaning it is actually an encoded line, but the last encoded line is exclusive, meaning that the line specified is *not* actually encoded.	261 (525/60) 311 (625/50)

- For audio codecs:

  input level, output level, window size

  If you don't specify parameters, the default values are used. You can override the defaults in the *.cfg* file, or by using the API calls. Acceptable values for these parameters are shown in Table 13

Table 13. Audio Parameters

Parameter	Acceptable Values	Default
input level	From 0.0 (full attenuation) to 1.0 (no attenuation)	1.0
output level	From 0.0 (full attenuation) to 1.0 (no attenuation)	1.0
window size	Number of audio fields to play during video still frame operations.	1

- For timecode generators:

  timecode format, timecode mode, time to seed, user bits to seed

  If you don't specify parameters, the default values are used. You can override the defaults in the *.cfg* file, or by using the API calls. Acceptable values for these parameters are shown in Table 14

Table 14. Timecode Parameters

Parameter	Acceptable Values	Default
timecode format	0 = Drop-frame 1 = Non-drop frame	1
timecode mode	0 = TcModeFreeze 1 = TcModeFreeRun 2 = TcModeFieldLocked 3 = TcModeRegenHold 4 = TcModeRegenFlywheel	2
time to seed	frame, second, minute, hour	
user bits to seed	32 bits, in reverse byte order (last, third, second, first)	

Each resource allocation line is assigned an **index number** in sequential order independent of comment lines or crosspoint lines. Thus, the first resource line found in an NCS file is assigned index number 1, the second is assigned index number 2, etc. These index numbers may be used by the crosspoint lines, which are described in the following section.

Crosspoint lines

Crosspoint lines assign default and scheduled crosspoints between resources. A basic explanation of these events is included below.

The following is the column-by-column layout of crosspoint lines:

- Column 1-2: source index number.

- Column 3: separator (-).

- Column 4-5: destination index number.

- Column 6: separator (,).

- Column 7: crosspoint indicator ("C" or "c").

- Column 8: 'D' or 'S' for default or schedule crosspoints.

  Scheduled crosspoint connections take precedence during playback, default crosspoints take effect at all other times (or in the absence of scheduled crosspoints). Typically, scheduled and default crosspoints are used in sets of three to define playback and E-to-E modes, as follows:

  - Default connection of an input to an output (E-E).
  - Default connection of an input to a codec (for recording).
  - Scheduled connection of the codec to the output (to override E-E during PB).

A configuration file should only have crosspoint lines for video and timecode.

The sample configuration files that follow provide examples of resource and crosspoint lines.

Sample Configuration Files

The following sample configuration files demonstrate how to create a basic file, and how to add features which the Profile Protocol Resources utility does not support, such as assigning two codecs for one channel. You'll find these and other sample configuration files in the *c:\profile\configs* directory.

Basic Configuration

This example shows how to create a basic configuration file.

```
// format is 2 digit base 10 numbers
// format XX[-]YY[,][func1[func2]] starting col 1
// format if col1 is not between 0 & 9 , its a comment
// format [optional parameters with white-space separators]
start in col 6
02-00,S    // index 1 - video input 0 shared
03-00      // index 2 - video output 0
01-00 100000 // index 3 - JPEG codec 0 at 100KB
01-02,CD   // Default connect video input->video output)
01-03,CD   // Default connect video input->video codec
03-02,CS   // Schedule connect video codec->video output


// now do the audio connections 1-4


00-00      // index 4 - audio codecs
00-01      // index 5 - audio codecs
00-02      // index 6 - audio codecs
00-03      // index 7 - audio codecs
10-00      // index 8 - audio outputs 1-4
10-01      // index 9
10-02      // index 10
10-03      // index 11
```

```
//  now do the LTC to recorder 1

04-00,S     // index 12 - LTC input
07-00       // index 13 - LTC output
09-00       // index 14 - tcRecorder
12-13,CD
12-14,CD
14-13,CS
```

Assigning a Second JPEG Codec

This example is the same as the basic configuration, but it adds another JPEG codec, connected to the same video input. This sample file is supplied as *2JpegSample.cfg* in the *c:\Profile\configs* directory on the Profile system drive.

```
// format is 2 digit base 10 numbers
// format XX[-]YY[,][func1[func2]] starting col 1
// format if col1 is not between 0 & 9 , its a comment
// format [optional parameters with white-space separators]
start in col 6
// format the rest is available

02-00,S        // index 1 - video input 0 shared
03-00          // index 2 - video output 0
01-00 100000   // index 3 - JPEG codec 0 at 100KB
01-02,CD        // Default connect index1->index2
                  // (vid in->vid out)
01-03,CD        // Default connect video input->video codec
03-02,CS       // Schedule connect video codec->video output
```

```
// now do the audio connections 1-4
00-00           // index 4 - audio codecs
00-01           // index 5 - audio codecs
00-02           // index 6 - audio codecs
00-03           // index 7 - audio codecs
10-00           // index 8 - audio outputs 1- 4
10-01           // index 9
10-02           // index 10
10-03           // index 11


//  now do the LTC to recorder 1
04-00,S         // index 12 - LTC input
07-00           // index 13 - LTC output
09-00           // index 14 - tcRecorder
12-13,CD
12-14,CD
14-13,CS


// manually add these lines to add a second Jpeg Codec.
02-00,S         // index 15 - video input 0 shared
03-01           // index 16 - video output 1
01-01 100000    // index 17 - video codec 1 at 100KB
15-16,CD        // Default connect index15->index16 (vid in-
>vid out)
15-17,CD         // Default connect video input->video codec
17-16,CS        // Schedule connect video codec->video output
```

Assigning an MPEG encoder

This example assigns an MPEG encoder, rather than a JPEG codec. It also illustrates how to assign both LTC and VITC timecode resources for a channel. The sample file is supplied as *mpegEnc.cfg* in the *c:\Profile\configs* directory on the Profile system drive.

```
// Sample Config File for an MPEG Encoder.
//
// first do the video system
// format is 2 digit base 10 numbers
// format XX[-]YY[,][func1[func2]] starting col 1
// format if col1 is not between 0 & 9 , it is a comment
// format [optional parameters with white-space separators]
start in col 6
//
// MPEG Encoder format:
// 12-YY bitrate format GopEnd iPerGOP pPerI bPerIP PixStruct
FirstEncodedLine LastEncodedLine (YY is the # of the Encoder
resource)
//
// bitrate:  between 4000000.0 and 50000000.0, Default
18000000
// format:   422 or 420, Default 422
// GopEnd:  0=GopOpenEnd, 1=GopClosedEnd, Default 1
// iPerGOP:  reserved.  Must be 1
// pPerI:    The number of p Pix per I Pix, Default 5, Range
1-10
// bPerIP: The number of b Pix per IP Pix, Default 2, Range 1-2
// PixStruct:  0=PixStructFrame, 1=PixStructureField, Must
be 0
// Max LastEncodedLine(exclusive) : 263 - NTSC,
//                                 313 - PAL.
```

```
// FirstEncodedLine(inclusive) = LastEncodedLine - Number of
lines per field
// Number of lines per field  240 - NTSC 4:2:0
//                            256 - NTSC 4:2:2
//                            288 - PAL  4:2:0
//                            304 - PAL  4:2:2
// Also FirstEncodedLine - LastEncodedLine should be divis-
ible by 16.
//
// for example (NTSC 4:2:0) //12-00 18000000.0 420 1 1 5 2
0 21 261
// for example (NTSC 4:2:2) //12-00 18000000.0 422 1 1 5 2
0 5 261
// for example (PAL 4:2:0)  //12-00 18000000.0 420 1 1 5 2
0 23 311
// for example (PAL 4:2:2)  //12-00 18000000.0 422 1 1 5 2
0 7 311


// Video Resources
02-00,S          // index 1 - DComponentVideo1InA
03-00            // index 2 - DComponentVideo1OutA
// Next line is for an MPEG Encoder
12-00 18000000 422 1 1 5 2 0 6 262        // index 3 - MpegEnc#1
01-02,CD         // Default connect DComponentVideo1InA to
DComponentVideo1OutA (E to E) index1 to index2
01-03,CD         // Default connect DComponentVideo1InA to
MpegEnc#1 (Record) index1 to index3
```

```
// Audio Resources
00-00           // index 4 - Audio Chan #1 (Input)
00-01           // index 5 - Audio Chan #2 (Input)
00-02           // index 6 - Audio Chan #3 (Input)
00-03           // index 7 - Audio Chan #4 (Input)
10-00           // index 8 - Audio Chan #1 (Output)
10-01           // index 9 - Audio Chan #2 (Output)
10-02           // index 10 - Audio Chan #3 (Output)
10-03           // index 11 - Audio Chan #4 (Output)

//  Timecode Resources
04-00,S       // index 12 - LTCIn1
07-00         // index 13 - LTCOut1
05-00,S       // index 14 - DComponentVITC1InA
08-00         // index 15 - DComponentVITC1OutA
09-00         // index 16 - TCRec#1
09-01         // index 17 - TCRec#2
12-13,CD    // Default connect LTCIn1 to LTCOut1
12-16,CD    // Default connect LTCIn1 to TCRec#1
16-13,CS    // Scheduled connect TCRec#1 to LTCOut1
14-15,CD    // Default connect DComponentVITC1InA to
DComponentVITC1OutA
14-17,CD    // Default connect DComponentVITC1InA to TCRec#2
17-15,CS    // Scheduled connect TCRec#2 to
DComponentVITC1OutA
```

Assigning an MPEG Decoder

The previous example assigns an MPEG encoder to a video input. By manually adding the following lines, you can assign an MPEG decoder and connect it to a video output.

// Manually edit these lines for Decoder

```
13-00          // index 18 - MpegDec#1 (Use 13-01 for
MpegDec#2, etc.)
18-02,CS       // Schedule connect MpegDec#1 to
DComponentVideo1OutA (Play)
```

PortServer

PortSever allows you to control a Profile unit remotely using Ethernet communications. For example, you can run PortServer on a remote Profile system so that you can access it from a local Profile using your LAN. Simply double-click the PortServer shortcut icon on the desktop to start it (or choose **Start | PDR Applications | PortServer**). The PortServer interface is shown in Figure 113.
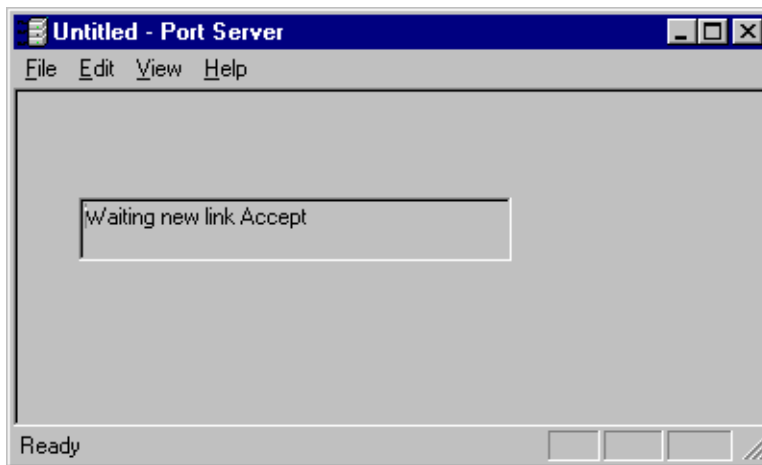

Figure 113. PortServer window

PDR Access Control

PDR Access Control is a Windows NT service that prevents one application from crashing another user's application by mistake. Though largely transparent to users, the service prevents applications from accidentally reloading the video processor while in use, essentially providing a controlled gateway to the processor. Applications attempting to load different video processor code than what is currently running are denied access and terminated; however, applications attempting to load the same code are given access to proceed.

The *c:\profile\profile.log* file tracks all messages from the video processor. The state of the video processor is periodically checked. If the processor does not respond, an administrator alert is generated. The event is logged to the Windows NT Event log. The Event log can be viewed with the Event Viewer application.

PDR Access Control is automatically installed and started as part of the installation process and is restarted every time the system is rebooted. This procedure is provided in the unlikely event that you need to start the service manually.

1. Log in as *administrator*.

2. Double-click **My Computer** on the desktop.

3. Double-click the **Control Panel** icon.

4. Double-click the **Services** icon. The Services dialog box appears (Figure 114).
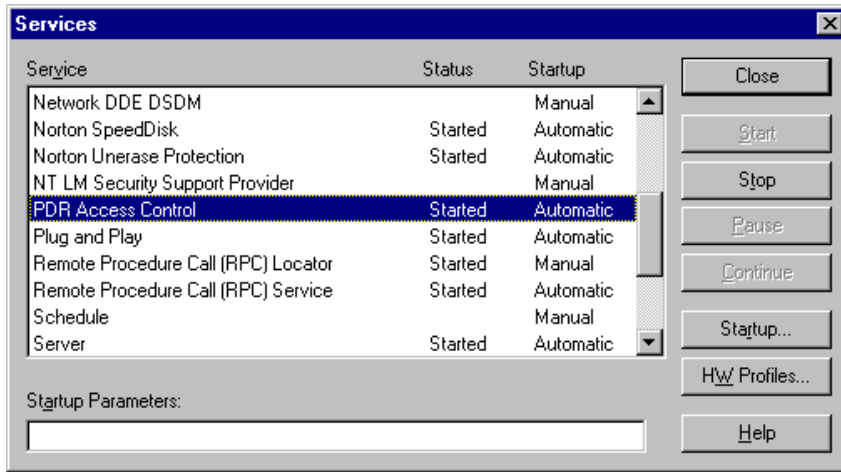
Figure 114. Services dialog box

5. Select **PDR Access Control** from the list of services. You may have to scroll the list box.

6. Click **Start** to start the service. By default, the service is automatically restarted whenever the system is rebooted. It is unlikely that you will ever need to start the service manually.

7. Click on **Stop** to stop the service, if desired.

8. Click **Close** to close the Services dialog box.

>>> *CAUTION: If the start-up option is changed from Automatic, the Profile applications are not able to run unless the service is started manually each time the system is rebooted.*

Updating Firmware

From time to time, it becomes necessary to reprogram components on boards in your Profile disk recorder or video file server. For example, when you install MPEG boards in a PDR 200, you must upgrade components on the Master Enhanced Disk Recorder (EDR) board. Updating the firmware in the selected components of these boards ensures that software and hardware will function together as expected.

To successfully update the EDR board, it must be Revision 2 or higher. You can determine the revision level of the boards by consulting the Profile log. For information on reading logs, see "Viewing Profile Logs" on page 211.

> *NOTE: This procedure applies if: 1) You are field-installing MPEG boards in a system that is not MPEG-ready; or 2) You are field-installing an EDR board. Systems with these boards installed in the factory (serial number B030000 and higher) are already updated.*

The reprogramming is based on references in the file *c:\profile\edr_isp.all*. Do not alter this file in any way as it may lead to incorrect programming of parts.

To update firmware:

1. Close any applications that may be running on the system.

2. At a command line, type **vdrsvc -stop** and then press Enter. This stops the PDR Access Service.

3. Choose **Start | Programs | PDR Debug Tools | Update EDR Firmware** or double-click the **Update EDR Firmware** icon. A window appears.

4. The program warns you to shutdown any applications that may be running and to stop the PDR Access Service. If you have already done so, as instructed in steps 1 and 2, type **Y**. Otherwise, type **N**, and return to step 1.
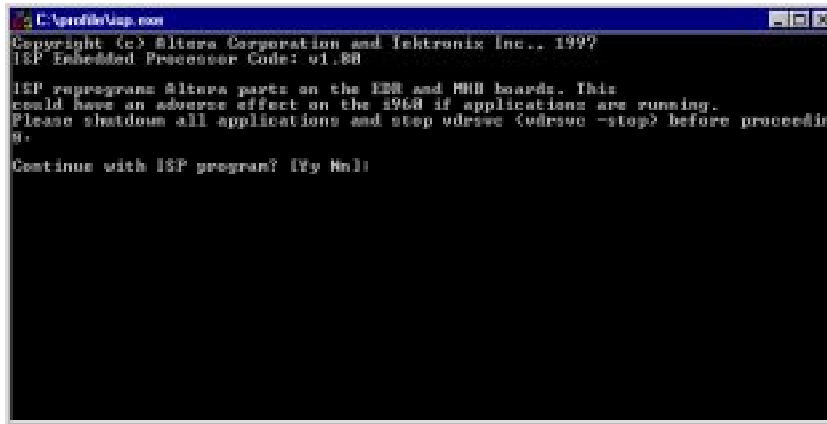
Figure 115. Update Firmware window

5. The update procedure steps through the reprogramming of the components, giving progress information as it proceeds. It retries up to three times to reprogram parts in the event of verification errors. After reprogramming all parts, a summary is provided that describes what has been done.

6. If parts have failed to program, power down the Profile unit completely, power it up again, and then run the program again; otherwise, just restart the Profile.

7. After the program runs successfully, restart your disk recorder so the changes can take effect.

Updating Fibre Channel Microcode

From time to time, it becomes necessary to reprogram microcode on your Fibre Channel board. Updating the microcode ensures that software and hardware will properly function together.

This release provides two versions of Fibre Channel board microcode. You must choose which one to use depending on your environment. The two versions are:

Loop compatible. This version is loaded on your Fibre Channel board at the factory. Use this microcode with Fibre Channel hubs, when your Video Network includes only Profile Systems and SGI Fibre Channel Servers. You can reload this microcode with the FC Loop-mode Microcode icon in the Profile Debug Tools folder.

Switch compatible. Use the FC Switch-mode Microcode to load this version of microcode onto your Fibre Channel board if you are connecting your Profile system to a Fibre Channel Switch. In addition, you must set switch mode on with the fconfig -s on command, or with the appropriate check box in Configuration Managers Configure Fibre Channel dialog box. You should also use the switch compatible version of microcode if you are connecting your Profile system to Fibre Channel devices from other manufacturers. Please note that this inter-operable microcode has not yet been optimized for loop operations.
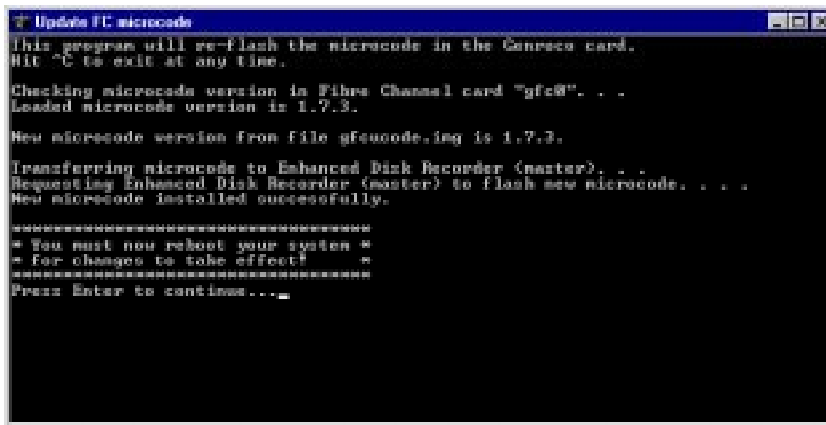
Follow these instructions to use either of these icons to load Fibre Channel microcode.

1. Close any applications that may be running on the system.

2. At a command line, type **vdrsvc -start** and then press Enter. This starts the PDR Access Service if it is not already started.

3. Choose **Start | Programs | PDR Debug Tools | Update FC Microcode**. A window appears.

4. The program asks if you want to continue. Type **Y**.

5. The program now reads the new image of the microcode from *c:\profile\etc\gfcucode.img*. The program automatically copies the old microcode to the file *c:\profile\etc\gfcucode.old*.

6. Restart the disk recorder in order for the microcode update to take effect. Use the Fibre Channel Configuration dialog box or the fcconfig command to verify that switch mode is on or off according to your needs. Each icon establishes settings that should be appropriate for most uses.

Use the Fibre Channel Configuration dialog box or the fcconfig command to verify that switch mode is on or off according to your needs. Each icon establishes settings that should be appropriate for most uses.

Figure 116. The Update FC Microcode window

Chapter **7**

Fibre Channel Video Networking

With Fibre Channel, you can copy and move media between a network of
Profile systems at faster than real time. To transfer data across Fibre Channel,
the Profile system needs both the Ethernet and Fibre Channel networks to
communicate. The Ethernet local area network (LAN) carries commands
between Profile disk recorders and the Fibre Channel connections send raw
video data. Both networks use TCP/IP (Transfer Control Protocol/Internet
Protocol). Because of this communication scheme, you must set up separate IP
addresses for each network. In the example that follows, you will connect two
Profile units together, configure them and run Fibre Channel transfers between
them.

> *NOTE: To communicate across the network, all Fibre Channel*
> *machines should have Profile system software version 2.4 installed.*

You must first configure your network, whether your Profile unit came from the
factory with a Fibre Channel card installed or whether you have installed Fibre
Channel as a field installation kit. Configuring your system for the Fibre
Channel also requires that you first configure your Ethernet LAN. See the
PDR200 Installation Manual or the *Profile Family Local Area Network
Installation Manual* for more information.

> *NOTE: Even an isolated Profile unit with a Fibre Channel card that*
> *is not connected to a network must be given an IP address. Follow the*
> *instructions for entering an IP address under "Fibre Channel IP*
> *Address Set Up" on page 244.*

Setting Up Hardware for Fibre Channel

First, you set up the Ethernet LAN. The LAN card uses a twisted pair network scheme and so must be connected via a standard 10BaseT Ethernet hub. You *cannot* plug one LAN card directly into another. You can put Profile disk recorders onto your site's computer network if you want, just as long as you are aware that it uses TCP/IP.

Next, you set up the Fibre Channel network. Unlike the Ethernet LAN, the Fibre Channel network will permit two machines to be plugged directly into each other. More than two machines, however, require a Fibre Channel hub or a Fibre Channel switch.

> ***NOTE: The cable which connects individual machines to the Fibre Channel hub is the same cable that connects two machines together. This cable comes with the Fibre Channel card. However, Profile Fibre Channel cables sold for use with Fibre Channel hubs do not have the required connectors for use with the Fibre Channel switch. You must obtain cables appropriate for use with the switch.***

The pinout for a 9-pin D type connector to 9-pin D type connector is as follows:

- Pin 1 to 5 and pin 5 to 1

- Pin 6 to 9 and pin 9 to 6

Setting Up Software for Fibre Channel

A common mistake is to set the IP address of the Fibre Channel board to the same IP address as the Ethernet network. This is wrong; they must be separate networks.

Each Profile unit has a computer name, often the serial number of the unit. But some people like to change it to something more meaningful, such as **PROFILE1** or **PROFILE2**. For Fibre Channel, you must set up two IP addresses for each Profile, one for the Ethernet card and the other for the Fibre Channel board. Here are some made-up IP addresses for two Profiles units:

Computer Name: **PROFILE1**
Ethernet Address: **192.168.99.1**
FC Address: **192.168.100.1**

Computer Name: **PROFILE2**
Ethernet Address: **192.168.99.2**
FC Address: **192.168.100.2**

You can use the these addresses if you want, but if your Ethernet boards are connected to your company computer network, check with your system administrator for the correct IP addresses to use.

Ethernet IP Address Set Up

To set the TCP/IP address for the Ethernet network:

1. Login as **administrator**

2. Choose **Start | Settings | Control Panel** or double-click the **My Computer** icon on the Windows NT 4.0 desktop, then click **Control Panel**.

3. Double-click the **Network** icon.

4. Click **TCP/IP**, then **Properties**.

5. Click **Specify IP Address**. For **PROFILE1** set the address, for example, to **192.168.99.1**

6. Click **OK.**

Fibre Channel IP Address Set Up

You can set up your Fibre Channel network in one of two ways:

- Through the Fibre Channel dialog box in the Configuration Manager graphical user interface. For instructions on how to do this, refer to "Setting Up Fibre Channel Networking" on page 102.

- With the **fcconfig** command.

To set up Fibre Channel with **fcconfig**:

1. Open a MS-DOS command window and type **fcconfig** followed by Enter. The following information is displayed:

```
Fibre Channel Network Configuration:
FC IP Address . . . . . . . . . . : not set
Hardware Address . . . . . . . . : 0
TCP/UDP checksums . . . . . . . . : Enabled
Multicast . . . . . . . . . . . . : Disabled
Auto host table administration  . : Enabled
F/C Switch . . . . . . . . . . . : Disabled
```

You need to set the IP address, the IP subnet mask, the hardware address and turn *off* TCP checksums and auto host table administration. By turning off TCP checksums, you maximize bandwidth, but you will not be able to detect data corruption. You turn auto host table administration table if you do not intend to use **fcncs** (see "The PDR Network Configuration Service" on page 252).

2. Type **fcconfig /?** followed by Enter. The following is displayed:

```
usage: fcconfig [options]
options:
    -i    <fc_ip_address> (dotted decimal)
    -g    <gateway> (dotted decimal)
    -n    <subnet_mask> (dotted decimal)
    -a    <hardware_address> (1-120, 0 for autoconfig)
    -t    <on | off> - enable/disable tcp checksums
    -hta <on | off> - enable/disable auto host table admin
    -s    <on | off> - enable/disable use of the switch
```

3. For **PROFILE1** in this example, type the following:

NOTE: Do not reboot when prompted.

```
192.168.100.1  followed by Enter
FC IP address set to 100.100.100.1
Reboot computer for settings to take effect!

fcconfig -g 255.255.255.0  followed by Enter
Gateway set to 255.255.255.0
Reboot computer for settings to take effect!
```

NOTE: Based on the address you use for a subnetmask, there is an implicit subnetmask, but you can override this with a larger mask. For example, 255.0.0.0 can be overridden by 255.255.0.0 or 255.255.255.0.

```
fcconfig -a 1  followed by Enter
Address set to 1
Reboot computer for settings to take effect!
```

NOTE: The hardware address can be any number between 1 and 120. In these examples, use 1 for PROFILE1 and 2 for PROFILE2. No two hardware addresses should be the same on the network.

```
fcconfig -t off  followed by Enter
TCP/IP checksums are now disabled.
Reboot computer for settings to take effect!

fcconfig -hta off  followed by Enter
Auto host table administration set to off.
Reboot computer for settings to take effect!
```

4. Now type **fcconfig** again followed by Enter:

```
Fibre Channel Network Configuration:
FC IP Address ...................: 192.168.100.1
Hardware Address .................: 1
TCP checksums ...................: Disabled
Auto host table administration ...: Disabled
F/C Switch ......................: Disabled
```

Enabling the Fibre Channel Switch

If you intend to connect your Profile system to a Fibre Channel switch instead of a loop, you'll need to load the appropriate microcode for the Fibre Channel board as explained in Chapter 6, "Using Profile Utilities", and set Fibre Channel Switch Mode ON. You can do this in one of two ways:

- Type the following command from the Command Prompt: **fcconfig -s on**.

  OR

- In Configuration Manager, select **Enable Switch** in the Fibre Channel Network Configuration dialog box (see "Setting Up Fibre Channel Networking" on page 102).

NOTE: You do not need to set the Fibre Channel hardware address of Profile systems connected to the Fibre Channel switch. These addresses are assigned dynamically in a fabric environment.

Once you've installed the required version of Profile System Software and loaded the appropriate microcode and drivers on all the devices you are connecting to the switch, you must configure each device for operation in a Fibre Channel fabric environment.

To configure your Fibre Channel server or any device other than your Profile system, refer to the installation manual for that device for instructions.

Editing the Hosts File

The next step is to edit the file *c:\winnt\system32\drivers\etc\hosts*. This file tells the Profile system what IP address is associated with what Profile unit. If you enter in all the Profile units' IP addresses that are on your network, then the same file can be copied onto all the other Profile units. This saves you editing each Profile's individual *hosts* file. You can also use a DNS server for name lookup, however instructions for using such a server are outside the scope of this manual.

An alternative to editing the hosts file is to use the PDR Network Configuration service (**fcncs)** to automatically update and maintain the *hosts* file. For more information on **fcncs**, see "The PDR Network Configuration Service" on page 252. If you want to use **fcncs** to automatically update your hosts file, you must enable auto host table administration by entering the command **fcconfig -hta on** followed by Enter. Your *c:\winnt\system32\drivers\etc\hosts* file will now be automatically administered by **fcncs**.

To update your *hosts* file manually:

1. Open the file in Notepad. The format is simple. First type the Ethernet IP address, followed by the machine name, such as **PROFILE1**. On the next line, type the IP address of the Fibre Channel board in that Profile unit, then the machine name again and add the characters **_fc0**. Here is an example:

```
192.168.99.1      PROFILE1
192.168.100.1     PROFILE1_fc0
192.168.99.2      PROFILE2
192.168.100.2     PROFILE2_fc0
```

2. Add these lines to the *hosts* file and remove any other lines which might conflict with them. All lines beginning with a # are comments and can be ignored. The *hosts* file will look something like this:

```
# Copyright (c) 1993-1995 Microsoft Corp.
#
# This is a sample HOSTS file used by Microsoft TCP/IP for Windows NT.
#
# This file contains the mappings of IP addresses to host names. Each
# entry should be kept on an individual line. The IP address should
# be placed in the first column followed by the corresponding host name.
# The IP address and the host name should be separated by at least one
# space.
#
# Additionally, comments (such as these) may be inserted on individual
# lines or following the machine name denoted by a '#' symbol.
#
# For example:
#
#      102.54.94.97   rhino.acme.com        # source server
#       38.25.63.10   x.acme.com            # x client host

192.168.99.1       PROFILE1
192.168.100.1      PROFILE1_fc0
192.168.99.2       PROFILE2
192.168.100.2      PROFILE2_fc0
```

3. Save the file in Notepad and exit.

4. Reboot your Profile unit.

5. Copy the new *hosts* file onto the other machine to save you editing it again.

Testing the Fibre Channel Network

Once both Profile machines are back up and running:

1. Double-click on the Port Server icon. This starts the Fibre Channel communication tool. It must always be running on any machine where you are using Fibre Channel. If you want, you can place Port Server in StartUp folder and set it to run minimized. Make sure its running on the other Profile machine, too.

2. After configuring all machines, verify name resolution using **fcping** by typing:

   fcping PROFILE1_fc0

   If this command returns:

   Host PROFILE1_fc0 is up

   You have successfully resolved the name **PROFILE1_fc0** to the IP address **192.168.100.1**. Keep in mind that although this verifies name resolution, it *does not* test Fibre Channel connectivity.

   If, however, the **fcping** command returns:

   Host PROFILE1_fc0 appears unreachable

   The Fibre Channel IP address could not resolve properly. You may want to reboot to ensure that any changes have taken effect or check your spelling.

3. Now start the Media Manager by double-clicking its icon. You only need to run Media Manager when you want to manually copy clips from one machine to another, but the Port Server needs to be run at all times on all machines connected to the Fibre Channel network or they won't be seen by Media Manager. For information on how to use Media Manager, see Chapter 3, "Using Media Manager," on page 105.

You will not automatically see the other machine on the network. For example, if you are running Media Manager on **PROFILE1** you will only see **PROFILE1**.

1. Choose **File | Add/Remove Machine**. The Add/Remove Machine dialog box appears. The *Local* label follows the name of the current machine, **PROFILE1**.

2. Click on the computer name for the other Profile machine you want, for example, **PROFILE2**.

3. Click **Add**.

4. Click **OK**.

For more information on connecting to remote Profile machines, see "Connecting to a Remote Machine" on page 110.

You can now copy or move media from one machine to another. In addition, you can play a clip or master with VdrPanel or Tool Box Editor while the media is being moved or copied to another machine.

Using the Listnames and Copymovie Commands

The **listnames** command line utility provides a way to list media on a remote Profile without using Media Manager. Valid arguments are datasets or volumes, groups or lists, and media. Dataset names are case sensitive. That means that **INT:** and **int:** would be considered different datasets.

The two arguments for **listnames** are:

- **-l start_arg** list media based on a starting argument **start_arg**, such as **INT:** If not specified, the utility will list all valid datasets (volumes)

- **-r remote_machine** lists media of a remote machine, such as **PROFILE1**. If not specified, the utility searches local machine only

This example lists all the valid datasets (volumes) on the remote machine **PROFILE1**:

    listnames -r PROFILE1

This one lists all groups (clip lists) in **INT:** on **PROFILE1:**

    listnames -r PROFILE1 -l INT: [or just **//**]

The final examples lists all movies in **INT:/default** on **Profile1**:

    listnames -r PROFILE1 -l INT:/default/

The **copymovie** utility copies media between two Profiles using the Fibre Channel network. The parameters to this utility are case-sensitive. The command is issued in the form:

copymovie srcMachine srcName destMachine destName

There are four arguments:

- **srcMachine** for the Profile machine where the source media is located (use an asterisk [*] to specify the local machine)

- **srcName** for the source name of the media

- **destMachine** for the Profile machine where you want copy to go (use an asterisk [*] to specify the local machine)

- **destName** is the name of the destination media

This example copies media called **INT:/default/movie1** from **PROFILE1** to **PROFILE2**, where it will be named **INT:/default/movie2**.

copymovie Profile3 INT:/default/movie1 Profile4 INT:/default/movie2

This example copies media called **INT:/default/movie1** from **PROFILE1** to the local Profile where the command was run, where it is named **INT:/default/movie7**.

copymovie PROFILE1 INT:/default/movie1 * INT:/default/movie7

The PDR Network Configuration Service

The PDR Network Configuration service (**fcncs**) collects information about other PDRs on the network via multicast, and maintains a local table of the information. It also will update the *c:\winnt\system32\drivers\etc\hosts* file if the **fcconfig -hta** option is set to **on**, and only if it is set to **on**.

This service has the following standard command line options:

fcncs -install installs the service on the system. The service starts automatically when installed.

fcncs -remove removes the service from the system.

fcncs -start starts the service.

fcncs -stop stops the service.

Chapter **8**

Using the Tool Box Editor

Storing media on a Profile system rather than on tape opens the door to almost instant access to video and audio material. Media is available to all of Profile's channels at once, so you can play a video on more than one channel at the same time. Since each of the channels (up to four) is independent, playback can start at a different time and place in a clip. One of the best features of the Profile system is that you can start playing material while it's still being recorded.

The basic element of digitally stored video and audio is the *clip*. A clip is a reference to video, audio, and timecode material recorded in media files on Profile disks. A clip has a beginning and an end, and, when first recorded, the beginning and end correspond to the first and last frames stored in the media file. A clip may refer to the entire media file or just part of it. When you delete a clip, the media file that the clip referred to remains on disk—only the reference to the media file is deleted, not the media itself.

The Tool Box Editor is a graphical user interface that lets you create digital media by capturing video and audio clips while also providing an inexpensive, cuts-only editing system. It lets you log video and audio material from a variety of sources, such as a satellite feed, live camera, VTR, CD player, or microphone. You can assemble material on disk and then send it back out to tape, broadcast, or archive.

After launching the Tool Box Editor (see Figure 117), the first step you must take is to acquire resources—such as codecs and audio channels—with the Resource Manager. Then you can capture a new clip or play an existing one. Other common tasks include creating new masters, playing masters, creating subclips, trimming clips, and deleting media.

> *NOTE: Profile system software version 2.5 supports Tool Box Editor version 1.1.5.*

Starting and Exiting the Tool Box Editor

To start the Tool Box Editor:

• Double-click the Tool Box Editor shortcut icon on the desktop.

• Choose **Start | PDR Applications |** Tool Box Editor**.**

   NOTE: The Tool Box Editor may be restarted at any time. Multiple instances are allowed.

Figure 117. Tool Box Editor window

You can start the Tool Box Editor from a command line, provided that *c:\profile* is in the path, by typing:

tbxedit.exe

You can also specify a project file name when you start the Tool Box Editor from a command line:

tbxedit.exe myproject.tbx

You can start Tool Box Editor while also connecting to a named Profile unit on the network:

tbxedit.exe -m profile7

NOTE: You cannot specify both a project file and a remote Profile machine in a command line at the same time.

Whenever you start the Tool Box Editor, a Hardware Communication Monitor is also started, if it is not already running. This program keeps track of the Profile host file (*profile.hst*) which lists Profile systems on the network, as well as remoting activities.
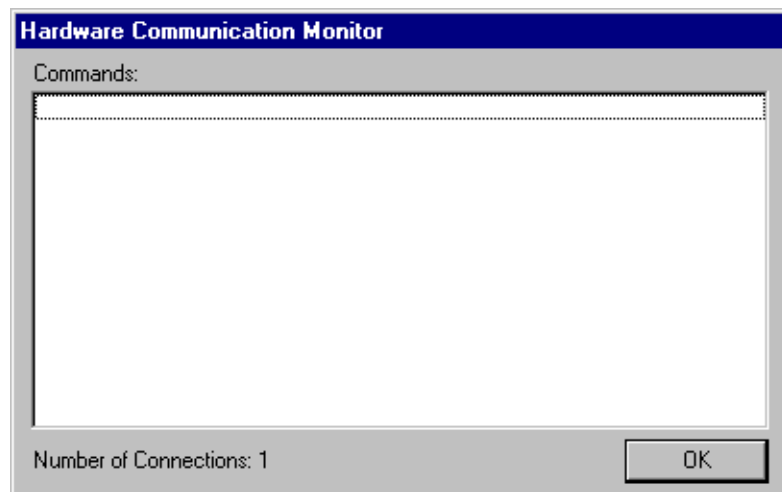
Figure 118. Hardware Communication message box

The Hardware Communication Monitor tries to connect to a machine in the project file (see "Project Files" on 257). If there is no project file present, you will automatically connect to the local machine. Otherwise, you will go to the Connect to Machine dialog box (see Figure 119).

To exit the Tool Box Editor:

• Choose **File | Close.**

A message box is displayed, asking you to confirm that you really want to exit the application. Click on the **Yes** button to confirm the exit or the **No** button to cancel the quit command.

Configuring Resources

You must configure video, audio, and timecode resources before using Tool Box Editor. You configure resources with Resource Manager. To start this tool:

• Choose **Config | Resources**.

For instructions on using Resource Manager, see "Using the Resource Manager" on 313.

Project Files

You can save your work environment into a project file (*.tbx*). A project file stores allocated resources and the current bin. Saving your environment eases the transition of set-ups between users. A descriptive project title is displayed in the title bar of the Tool Box application, including the current machine name and channel.

A project file contains the following information for the last Profile machine connected to:

• What the last machine was.

• The Resource Manager configuration.

• The current bin.

If you connect to a new remote Profile machine during a session, the default settings for that Profile machine (saved by Resource Manager) are used for that machine. If no defaults have been saved, factory defaults are used.

To save the current work environment in a project file in the current working directory:

• Choose **File | Save**.

To open an existing project file:

• Choose **File | Open**.

You can also specify a project file name when you start the Tool Box Editor from a command line:

   tbxedit.exe myproject.tbx

To create a new project file:

• Choose **File | New.**

You are asked to save the current project file (if necessary) and then if you are connected to a local machine, the Tool Box Editor caches media and is set up using a default configuration. If you are connected remotely, you are also asked which machine to connect to in the Connect to Machine dialog box.

To save an existing project file under a different name:

• Choose **File | Save As.**

Connecting to a Remote Profile Machine

You can connect from your local machine to any remote Profile machine in your network. A local Profile machine refers to a Profile system to which you are directly attached. A remote Profile machine refers to a Profile system that is connected to your local system via an Ethernet local area network (LAN).

To connect to a remote Profile machine:

1. Choose **File | Remote Machine**. The Connect to Machine dialog box appears. The label *Local* appears after the name of the local Profile machine.
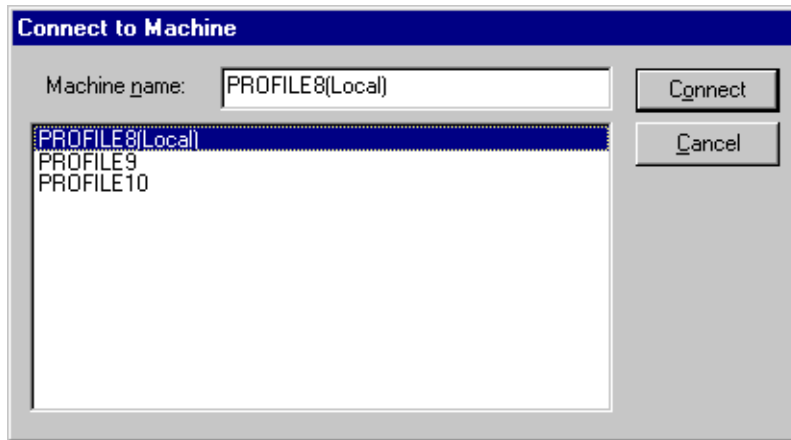
Figure 119. Remote Machine dialog box

To connect a Profile machine from the network host list:

1. Select the name of the machine in list box.

2. Click **Connect**.

3. The Connecting to Machine dialog box is displayed. If the connection is unsuccessful, you are given the opportunity to retry the connection or to cancel the operation.

   NOTE: To add a Profile machine to the network host list, see "Connecting to a Remote Machine" on 110.

Selecting a Current Bin

After you have acquired resources and chosen operational settings, you are ready to start editing. First, let's discuss some basics.

With the Tool Box Editor, you edit media such as clips and masters. The capture timeline lets you capture video and audio clips while the edit timeline allows you to edit a sequence clips into a master.

A bin is simply a collection of masters and clips. The current bin is the set of media displayed in the current bin display. (See Figure 120) By default, the current bin is the first or top bin displayed in Media Manager.

The current bin display helps you focus on and work with a set of clips and masters. Above the display, the column headers are shown. Click on the column header bar by pointing the mouse pointer at the header and pressing the left mouse button. The media files are then sorted according the criteria of the columns.

You can also view (sort) media in the current display in several other ways—showing all media at once (default), clips only, or masters only.

To select a view, simply click on the view bar above the contents pane and choose a menu item. You can also customize how you sort the media by name, type, or date—or all three at once. Selecting and sorting views is useful when you have a lot of media on disk.
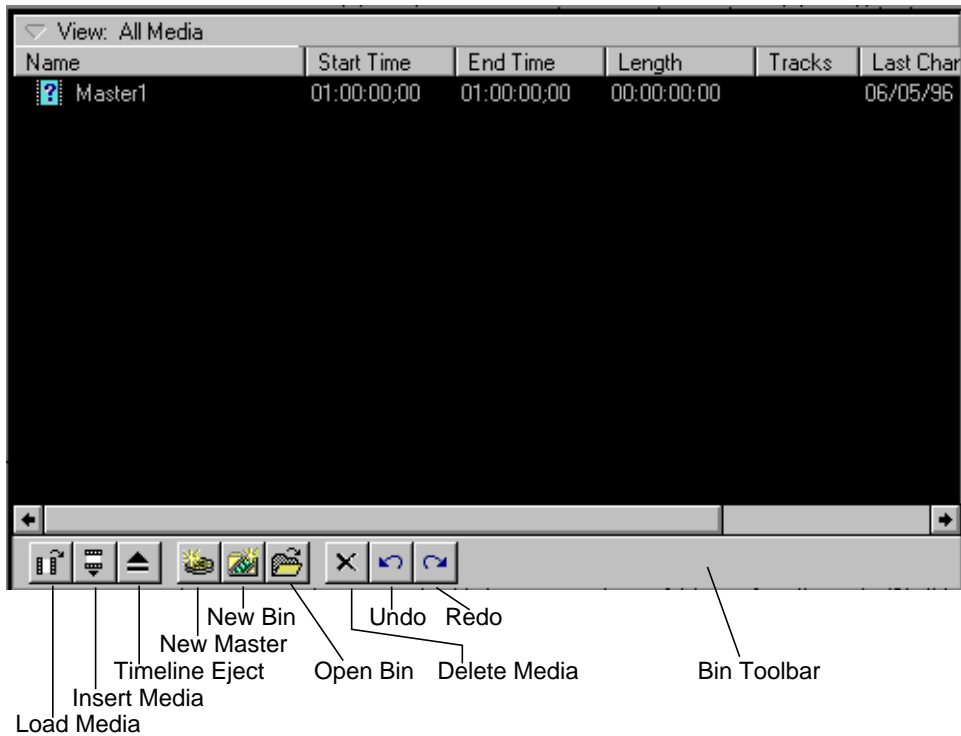
Figure 120. Current bin display

Below the current bin display is a set of buttons (from left to right):

- **Load Media**: Loads a selected master onto the edit timeline or a selected clip onto the capture timeline.

- **Insert Media**: Inserts a selected clip into the currently loaded master on the edit timeline near the location of the current timeline cursor.

- **Timeline Eject**: Ejects media from the active timeline.

- **New Master**: Creates a new, empty master, ready to receive clips.

- **New Bin**: Creates a new bin within a volume and displays it in the current bin display.

- **Open Bin**: Opens an existing bin and displays it on the current bin display.

- **Delete Media**: Deletes selected media.

Opening a Bin

To open or change the current bin:

1. Click the **Open Bin** button.

2. Enter the name in the text box or select the desired bin from the list box and press **OK**.

3. The selected bin is loaded into the current bin display.

Creating a New Bin

You will often want to create a new bin to store and organize new media. To create a new bin:

1. Click the **New Bin** button below the current bin display and the new bin dialog box is displayed.

2. Enter the name of new bin in the text box, or accept the default name.

3. Click **OK** to accept the new bin name.

The new bin automatically appears in the current bin display.

Record Time Remaining

Below the edit timeline (lower-left) is the record time remaining, in the form **00:00** (Hours:Minutes). This indicates the amount of storage remaining in the current Profile volume. The amount varies based on the current video quality. Generally, the higher the quality of video, the more disk space is used, thus leaving less time remaining.

Renaming Media

To rename a clip or master:

1. Select the clip or master in the current bin.

2. Choose **Rename** from the **Media** menu or from the shortcut menu with a right-click. You can also select the bin or master again in the current bin.

3. Type a new name, then press Enter.

Viewing Media Properties

You can view the media properties for clips and masters. To view these properties:

1. Select a clip or master in the current bin.

2. Choose **Properties** from the **Media** menu or from the shortcut menu with a right-click. You can also double-click the clip or master in the current bin. The Properties dialog box appears (see Figure 121).
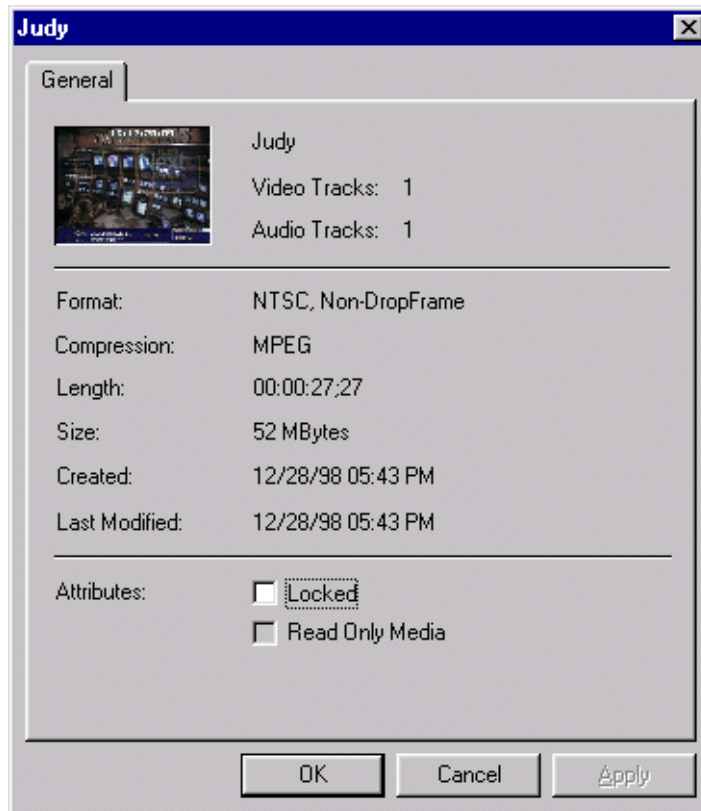
Figure 121. Properties dialog box

In this dialog box, you can view:

- A preview frame of the clip or master to help identify it. Preview frames are not available for MPEG masters.

- The name of the clip or master.

- How many tracks the clip or master uses for both audio and video.

- The media format, either NTSC or PAL. NTSC clips are recorded with either drop-frame or non-drop-frame timecode.

- The length of the clip or master. The length is shown in timecode format: **00:00:00:00** (Hours:Minutes:Seconds:Frames).

- The date and time that the media was created and the date and time it was last changed. The date and time the media was created or last changed is shown in the form: **12/2/94 9:40 PM**

- The read-only attribute, which you can change by clicking the Read Only box. Clips and masters with the read-only attribute cannot be renamed, deleted, or modified in any way.

Deleting Media

When the amount of remaining disk storage begins to get low (the time remaining is displayed below the edit timeline), you can free space by deleting unused media.

1. Select media from the current bin display. You can select either clips or masters; you can also select several clips or masters at a time.

2. Choose **Delete** from the **Media** menu or from the shortcut menu with a right-click. Press the **Delete** key or the **Delete** button on the bin toolbar.

3. A dialog box asks you to confirm that you want to delete the selection. If you click on **Yes**, the media is deleted; if you click on **No**, the operation is cancelled.

4. When media is deleted, it is moved to the Recycle bin until the Recycle bin is emptied.

   NOTE: If a clip is locked, you cannot delete it. When a clip is deleted, its source material is not deleted if any other clips or masters reference that material. Only after the last clip is deleted is any disk storage freed.

Emptying the Recycle Bin

When a clip or master is deleted, it is moved to the **Recycle** bin and is permanently deleted when the **Recycle** bin is emptied. If an item of the same name is in the **Recycle** bin, the new item is automatically renamed.

To empty the **Recycle** bin:

• Choose **File | Empty Recycle Bin**.

NOTE: If the Recycle bin contains no deleted media, the Empty Recycle Bin menu item is dimmed.

The Capture Timeline
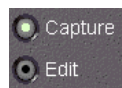
The capture timeline allows you to capture and trim clips. You can set the current time position and adjust mark in or mark out points. Click on the **Capture** button below the audio controls to activate the Capture timeline without changing the current time position.
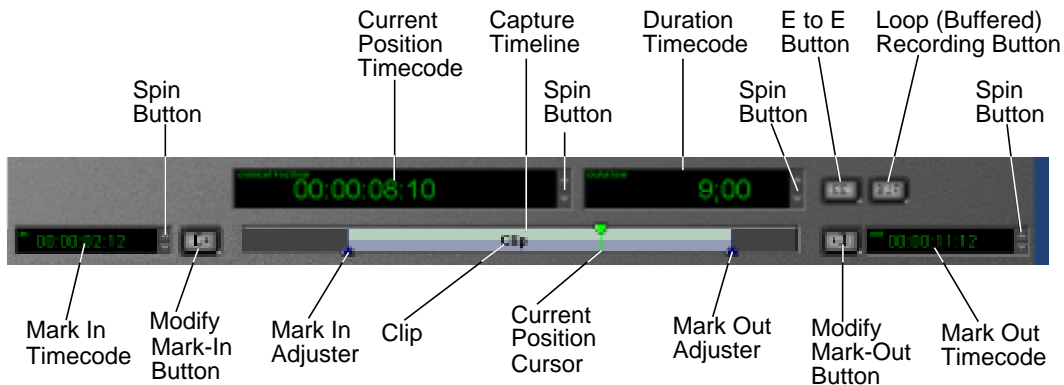
Figure 122. Capture timeline

When recording a clip on the capture timeline, you see the clip name and its record status. With normal recording, you see a *Recording* label. With loop recording, you see a *Buffer Recording* label. If a clip is being recorded on another channel simultaneously, the **Mark-in** and **Mark-out** buttons are disabled and the *Read Only* label is displayed.

The Tool Box Editor displays four timecode indicators: current position, duration, mark-in, and mark-out. The timecode indicators display hours, minutes, seconds, and frames in the form **00:00:00:00**. The duration displays the minimum number of digits. Drop-frame timecode is indicated by a semicolon (;) before the frame number.

Each part of the timecode—frames, seconds, etc.—can be selected by a click of the left mouse button and then changed separately. To the right of each indicator are the spin buttons with an arrow pointing up or down. Click on the up arrow and the time is increased, or decrease it by clicking the down arrow.

When a clip is loaded onto the capture timeline, the current position timecode indicator shows the frame-accurate cursor position in the clip. To move the current position cursor, click anywhere on the capture timeline. The updated timecode is displayed in the indicator as you move the cursor.

To adjust a clip's mark in or out point, move the current position cursor to the desired location and then click on the **Modify Mark-In** or **Modify Mark-Out** button. The mark in and mark out timecode indicators are displayed on either side of the capture timeline. The mark in and mark out markers on the capture timeline indicate where these marks lie on the clip. To move the mark in or mark out, grab the mark in or mark out marker on the capture timeline by clicking on it with the left mouse button and holding the button down while you move it.

To bring up the timecode entry window, click in a timecode indicator and then press + (plus sign), – (minus sign) on the keypad or = (equal sign) on the keyboard. To add to a timecode, click inside a timecode indicator, press + and the timecode entry window appears. Enter the desired value in the form **00:00:00:00** and press Enter. (Only numbers need to be typed.) The value is added to the timecode.

To subtract from a timecode, click inside a timecode indicator press – and the timecode entry window appears. Enter the desired value in the form **00:00:00:00** and press Enter. The value is subtracted from the timecode. To change the value of the timecode, click inside a timecode indicator press = and the timecode entry window appears. Enter the desired value in the form **00:00:00:00** and press Enter. The value is changed to the desired timecode. If an entry in the timecode entry window is out of bounds, it is ignored.
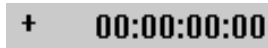
Figure 123. Timecode entry window

The **E to E** (Electronics to Electronics) button is to the right of the duration timecode indicator. By default, E to E is off. If you click on this button, E to E is activated. When E to E is off, the monitor shows the active timeline's current position. When it is on and no clips are playing or recording, the Profile channel's live video input bypasses the codec and is directly connected to the outputs.

Figure 124. E to E button

Capturing a New Clip

Now you are ready to capture or record a new clip.
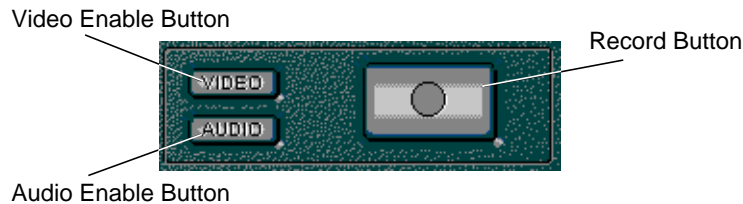
Figure 125. Record buttons

1. First, you need to enable video and/or audio for recording. To enable inputs for recording, you can click on video or audio buttons. The buttons are lit when activated.

2. All acquired audio channels may be used when recording new clips. However, you need to select a set of audio channels. To select a set of audio channels for recording:

• Click the **Audio Enable** button.

• Enable audio channels by clicking on the channel selection button above the appropriate audio meter. (See Figure 132)

3. Enter the new clip name in the Clip Name text box, or simply accept the default. The default name automatically increments to a unique name. With a right-click in the text box, you can choose from several editing commands.

Figure 126. Clip Name text box

4. Click on the **Record** button. You can also choose **Record** from the **Media** menu or from the shortcut menu with a right-click.

5. When you are done recording, click on the **Stop** button. (See Figure 127)
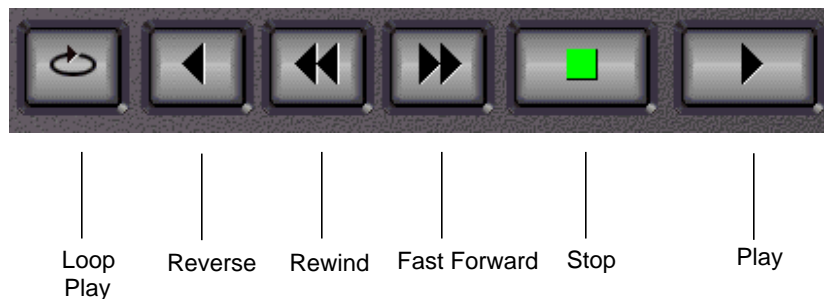
Figure 127. Transport controls

The transport controls are:

- **Loop Play:** Plays the active timeline at normal speed. When the end of the media is reached, play begins again at the beginning of the media.

- **Reverse:** Plays the active timeline in reverse.

- **Rewind:** Rewinds the active timeline or returns the current position to the beginning of the clip.

- **Play:** Plays the active timeline at normal speed.

- **Fast Forward:** Fast forwards the active timeline.

- **Stop:** Stops play on the active timeline.

Loop Recording

You can also loop record material. To loop record material, you set up a record buffer that will allow you to record for a length of time. When you reach the end of the record buffer, the current position moves back to the beginning of the buffer and previously recorded material is overwritten. The steps for loop recording are as follows:

1. Choose **Config | Record Buffer** and the Record Buffer dialog box appears. The maximum record time reflects time allocated to all activated buffers and time allocated to the channel and available record time on the Profile unit.
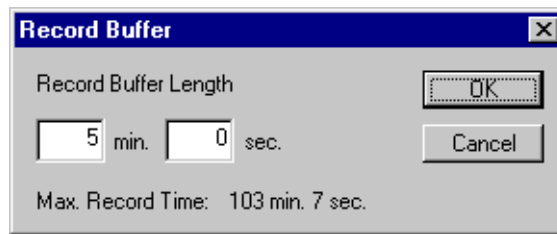
Figure 128. Record Buffer dialog box

2. Enter the length of the record buffer and click **OK**.

3. Click **BUF** in the upper-right corner of the screen to activate this feature. When activated, the button is lit.

4. Follow the steps in "Capturing a New Clip" on 266.

Playing a Clip

Now that you have recorded a clip, you can play it back:

1. Select a clip in the current bin.

2. Choose **Load** from the **Media** menu or from the shortcut menu with a right-click. You can also click on the **Load** button on the current bin toolbar. The clip is loaded onto the capture timeline.

3. Click on the **Play** button.

You can also drag and drop a clip onto the capture timeline. To drag and drop a clip:

1. Select a clip by clicking the left mouse button while the mouse pointer is over the desired clip and hold the button down.

2. Drag the clip to the capture timeline and release the mouse button.

Trimming a Clip

Trimming a clip means changing the mark-in and/or mark-out points so that the clip duration becomes shorter. To trim a clip:

1. Select the clip you want to trim in the current bin.

2. Load the clip onto the capture timeline.

3. Do one of the following:

- Drag the mark-in or mark-out cursors to a new position on the timeline (see the mark-in and mark-out cursors in Figure 122, page 264).

- Drag the current time cursor to a new location and click on the **Modify Mark-in** button or **Modify Mark-out** button. The current position is taken as the new mark position.

- Adjust the in and out marks by entering the new timecodes in the boxes provided (see the timecode entry boxes in Figure 122, page 264).

Even when trimmed, media remains on disk. Choose **Media | Cleanup** to remove excess media permanently from a trimmed clip. The trimmed portions are removed from disk, thus freeing space for more clips.

> *NOTE:* **Media | Cleanup** *works only if no subclips have ben created from a clip. If subclips have been created, or if the clip is referenced by a master,* **Cleanup** *will fail.*

Creating a Subclip

A subclip is a portion of an existing clip. Subclips can help you order your material when creating masters. The buttons that allow you to create subclips are the **Create Mark-in** and **Create Mark-out** buttons. With the **Create Mark-in** button, you mark where you want to start the subclip; with the **Create Mark-out** button, you specify where you want to end the subclip.

In addition, you can set user marks as points of interest that you can jump to at a later time.
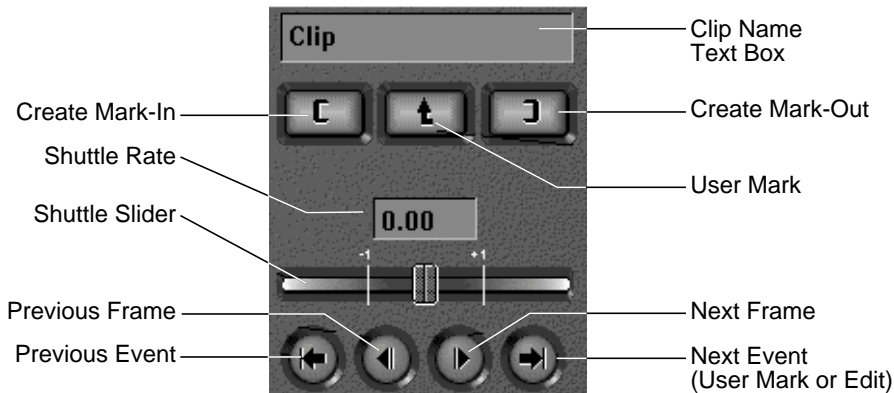
Figure 129. Create and User Mark buttons, plus event and frame controls

To create a subclip:

1. Select the clip in the current bin from which you want to create a subclip.

2. Choose **Load** from the **Media** menu or from the shortcut menu with a right click. You can also click the **Load** button on the current bin display toolbar. The clip is loaded onto the capture timeline.

3. Enter a name for the subclip in the Clip Name text box. This is optional as a default name is automatically generated.

4. Move the current position cursor to the desired starting location.

5. Click on the **Create Mark-in** button.

6. Move the current position cursor to the desired ending location.

7. Click on the **Create Mark-out** button. The subclip is added to the current bin.

User Marks

You can insert a user mark into a clip so that you can easily jump to that mark later in the editing process. You insert the mark by placing the current position cursor and then clicking on the **User Mark** button. A user mark is inserted at the current time cursor position. You can jump to user marks by clicking on the **Previous Event** and **Next Event** buttons.

To remove the current user mark:

1. With the clip loaded on the capture timeline, locate the exact frame where the user mark is located using the event and frame controls.

2. Choose **Timeline | Remove Current User Mark**.

To remove *all* user marks:

1. Load the clip onto the capture timeline.

2. Choose **Timeline | Remove All User Marks**.

Event and Frame Controls

The event and frame controls let you navigate the active timeline in forward or reverse direction (see Figure 129). The **Previous Frame** and **Next Frame** buttons display the last or next frame. The **Previous Event** and **Next Event** buttons move the current position to the next user mark, mark-in, or mark-out points.

Shuttle Controls

The shuttle rate slider sets the play speed in the range –16 to +16. The play speed increases as you move the slider to the right and decreases you as you move the slider to the left. You can also adjust the play speed with the shuttle rate input box. Simply type in the rate in the range –16 to +16 and press Enter. The selected clip begins playing automatically whenever you adjust the shuttle rate.

Creating Subclips on the Fly

To create a subclip on the fly, either while recording a new clip or by playing an existing clip:

1. To start recording, choose **Record** from the **Media** menu or from the shortcut menu with a right-click. You can also click the **Record** button. A new clip appears in the current bin display whose duration grows longer with each new frame recorded.

2. To play an existing clip, select a clip in the current bin display, choose **Load** from the **Media** menu or from the shortcut menu with a right-click. You can also click the **Load** button on the current bin toolbar. Then click the **Play** button.

3. Enter a new subclip name in the clip name field or accept the default name.

4. To create a clip on the fly, click **Create Mark-in**. This starts the new clip. A new clip name appears in the current bin display with a duration of only one frame.

5. Click **Create Mark-out**. The new clip's duration is updated.

6. Repeat steps 2–4.

7. Click the **Stop** button when done.

The Edit Timeline

The edit timeline lets you edit masters and their tracks of video and audio (up to sixteen tracks of audio). The current frame is indicated by the placement of the current position (time) cursor. The horizontal scroll bar allows you to scroll through time, and the vertical scroll bar allows you to scroll through tracks. Select the **Edit** button beneath the audio controls to activate the edit timeline without changing the current time position.
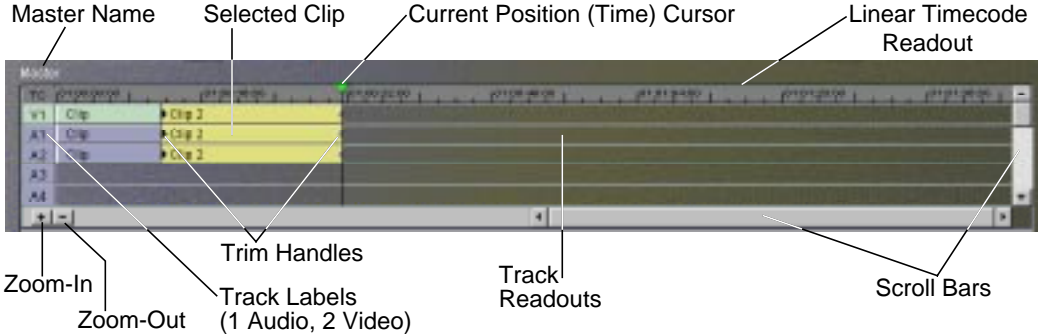
Figure 130. Edit timeline

Beneath the edit timeline is a toolbar displaying these buttons:

- **Zoom-in:** Zooms in the track scale.

- **Zoom-out:** Zooms out the track scale.

You can insert clips at the edit closest to the current time position by choosing **Insert** from the **Media** menu or from the shortcut menu with a right-click, or by clicking **Insert Media** on the current bin toolbar.

After you have inserted material onto the edit timeline, you can trim source material. You can trim clips directly with trim handles. To make the trim handles appear, select the clip while it is on the edit timeline (see Figure 131). You can drag the trim handles to the left or right to make the clips shorter or longer, to the limit of the beginning and ending of the source material.
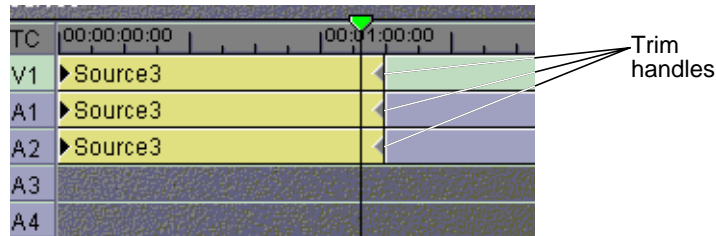
Figure 131. Trim handles on the edit timeline

As you trim a clip, the current channel output plays source material from the trim position rather than the current time position. Timecode for the trim position is shown at the bottom of the timeline, with the amount of time added or removed from the clip below that.

A few keyboard shortcuts are available for trimming:

- Select trim handle head: **Ctrl-h**

- Select trim handle tail: **Ctrl-t**

- Trim left 10 frames: **Shift-z**

- Trim left 1 frame: **z**

- Trim right 1 frame: **x**

- Trim right 10 frames: **Shift-x**

Creating a New Master

A master is a sequence of clips. To create a new master:

1. Click on the **New Master** button on the current bin toolbar. The New Master dialog box appears. (You can also drag clips to the empty edit timeline from the current bin.)

2. Enter the name of the new master in the New Master text box, or simply accept the default. The default name is always unique.

3. Click on the **OK** button. The name of the new, empty master appears above the edit timeline.

Adding Media to a Master

A newly created master is empty. You can assemble a master by inserting clips or even other masters into it:

1. Click in the edit timeline to make it active.

1. Select a clip or master in the current bin.

2. Choose **Insert** from the **Media** menu or from the shortcut menu with a right-click. You can also click the **Insert Media** button on the current bin toolbar.

3. The media is loaded onto the edit timeline.

You can also drag and drop a clip or master onto the edit timeline. To drag and drop media to the edit timeline:

1. Select a master or clip in the current bin by pressing the left mouse button while the mouse pointer is over the desired clip and hold the button down.

2. Drag the master to the edit timeline and release the mouse button.

3. Each is inserted into the new master at the closest cursor location. After insertion, the time cursor automatically moves to the last frame of the new material.

Playing a Master

Now that you have created a new master, you can play it or any other master using the edit timeline:

1. Select the master you want to play in the current bin.

2. Choose **Load** from the **Media** menu or from the shortcut menu with a right-click. You can also click on the **Load** button on the current bin toolbar. The master is loaded onto the edit timeline and the timeline is made active.

3. Click on the **Play** button.

You can also drag and drop a master onto the empty edit timeline. To drag and drop a master:

1. Select a master by pressing the left mouse button while the mouse pointer is over the desired clip and hold the button down.

2. Drag the master to the edit timeline and release the left mouse button.

   NOTE: Masters cannot be loaded onto the capture timeline.

Using the Audio Controls

The Tool Box Editor lets you gain access to up to 32 channels of audio. Each audio channel consists of an audio channel record selector button and an audio metering section. The audio metering section contains an input indicator, an overload indicator and, from left to right, tick marks to indicate decibel levels, an input gain level indicator, an audio level bar meter, and an output gain level indicator.
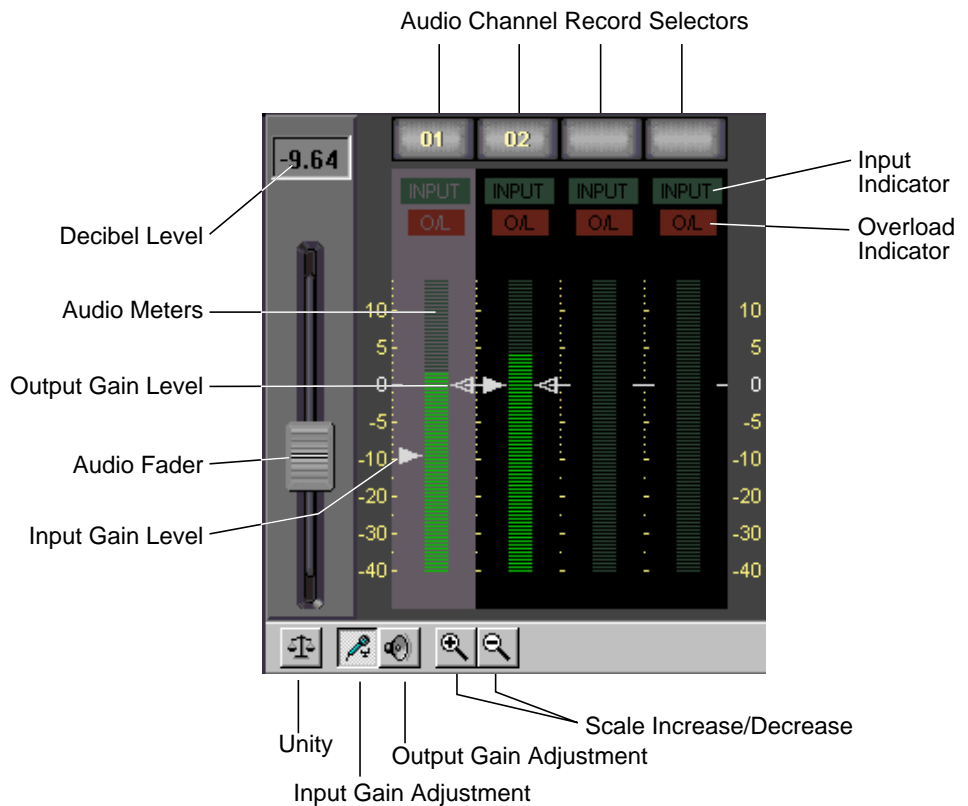
Figure 132. Audio controls

The overload indicator lights if the audio level is above the highest level of the meter. The input gain level, audio level, and output gain level use the same metering scale. The metering scale is a +4.0 dB meter scale (+0 corresponds to +4.0 dB) and ranges from +14 dB to –40 dB. (+18 dB to –56 dB full scale).

At the top of the four audio meters are the audio channel record selector buttons. Valid audio channels for the current channel will have record selector buttons containing a channel number. To enable a channel for recording, place the mouse pointer over the record selector button and click on it with the left mouse button.

The audio fader lets you adjust the audio input and output levels of the currently selected channel. If more than one audio channel is selected for gain adjustment, the fader level reflects the highest gain level of the selected audio channels. The decibel level window above the fader also displays the fader's current decibel level.

The input and output gain levels of each channel may be adjusted also. To select an audio channel for gain adjustment, place the mouse pointer over any part of the channel's meter section. Click the left button to select the channel. The meter section is highlighted.

Below the audio gain displays is the audio control toolbar which has the following buttons:

- **Unity:** Sets all audio levels to the unity level (0 dB[+4.0]). To set unity, the audio meter must be selected and the input or output gain adjustment button must be selected.

- **Input gain adjustment mode:** This button activates the input level arrow (left side) for fader adjustments.

- **Output gain adjustment mode:** This button activates the output level arrow (right side) for fader adjustments.

- **Scale adjustment increase/decrease:** These buttons zoom in or zoom out on the audio display scale in the range of +6 to –6 dB.

Tool Box Editor Keyboard Shortcuts

Tool Box Editor Keyboard Shortcuts

The Tool Box Editor automatically programs a number of keyboard shortcuts.

Table 15. Tool Box Editor Keyboard Shortcuts

Shortcut Key	Command
F1	Activate Channel 1
F2	Activate Channel 2
F3	Activate Channel 3
F4	Activate Channel 4
F9	Select video
F11	Select audio
F12	EE toggle
j	Reverse Play
h	Rewind
;	Fast Forward
l	Play
n	Record
SPACE **or** k	Stop
i	Create Mark-In
o	Create Mark-Out
q	Modify Mark-In
w	Modify Mark-Out
u	User Mark
, (comma)	Previous Frame (left)
. (period)	Next Frame (right)
Left Arrow	Previous Frame (left)
Shift Left Arrow	Jump Back 10 Frames
Right Arrow	Next Frame (right)
Shift Right Arrow	Jump Forward 10 Frames
a	Previous Event
s	Next Event
Ctrl-H	Select trim handle head
Ctrl-T	Select trim handle tail
z	Trim left 1 frame

Profile Family   **279**

Table 15. Tool Box Editor Keyboard Shortcuts

Shortcut Key	Command
x	Trim right 1 frame
Shift-z	Trim left 10 frames
Shift-x	Trim right 10 frames
1	Give focus to current position timecode
2	Give focus to Duration timecode
3	Give focus to Mark-in timecode
4	Give focus to Mark-out timecode
7	Give focus to Fader Level
8	Give focus to Shuttle Rate
9	Give focus to New Clip Name
0	Give focus to Bin Display
Ctrl-M	Media Manager
Ctrl-N	New Project File
Ctrl-O	Open Project File
Ctrl-S	Save Project File

Using the List Manager

The Profile List Manager lets you automate your use of the Profile video disk recorder. You'll probably want to use List Manager to schedule playback of JPEG or MPEG clips or masters created in the Tool Box Editor on designated outputs. List Manager also lets you record incoming video at predetermined times or send incoming video directly to an output. You can also set up times to switch a live connection, transfer media between Profile systems connected via Fibre Channel, or even archive a clip on a library unit. You can combine these functions to increase the automation level of your station operations. (See Figure 133.)

> *NOTE: Profile system software version 2.5 supports List Manager version 1.2. This version supports MPEG.*

List Manager Overview

The Profile List Manager works with events. Each event is a task or operation that List Manager performs on a clip or a master or on incoming video.

List Manager uses a software "engine," called the Event Scheduler Engine, to schedule your lists. It runs behind the scenes and does all the actual work of playing and recording clips at the appointed times. This low-level software starts automatically when you start the List Manager, and continues to run for the rest of that Windows NT session, even if List Manager isn't running.

If you need to stop the Event Scheduler for any reason, click the minimized Event Scheduler icon, then type *exit* on the command line and press Enter.

List Manager lets you schedule playback, record, switch, transfer, and archive events. A playback event lets you play a clip or master at a designated time, while a record event allows you to record material at a given time. A switch event schedules a live connection; input and output are connected directly in E to E mode at a predetermined time and remain in that mode until the next playback event. A transfer event schedules the copying of media from one Profile video disk recorder to another Profile unit on the network (requires Ethernet and Fibre Channel connections). An archive event copies media to or from a Profile library system, such as the PLS 200 or PLS 20.

All of these capabilities are available on all Profile channels. For example, if you have four video channels, you might choose to dedicate two channels to recording incoming material, one for on-air playback, and the other for preview.

Each event can be scheduled to occur at an exact time, on demand, or it can follow other events. You can override or stop a list at any time.

List Manager provides you with two ways of scheduling lists:

- **Monitor.** You can drag and drop events into the list in Monitor view to schedule them immediately. Monitor displays the On-air List, which is the name of the list that is controlling activities on your Profile. List Manager always reads the On-air List, and will perform the events you see in the Monitor view at their appointed times unless you delete events. The On-air List can't be saved for future use. There is one On-air List and it has a limit of 5000 events.

- **Edit Window.** You can build several lists in the Edit window to use at a later date or to store for repeated use. Lists you build in the Edit window are not scheduled immediately. When you choose the Schedule List command from the Edit menu, the list is integrated into the On-air List and its events are performed with other events which were already on the On-air List.

List Manager validates the On-air List to make sure that you haven't scheduled conflicting events using the same Profile resources. You can then schedule the list and let List Manager control your Profile. You can follow the operation of a list by using the Monitor view on any or all of your Profle's channels.

Starting List Manager

To start List Manager in Windows NT 4.0:

• Double-click the List Manager shortcut icon on the desktop.

Or:

• Choose **Start | Programs | PDR Applications |** List Manager.

When you start List Manager for the first time, your screen should look similar to the one shown in Figure 133.
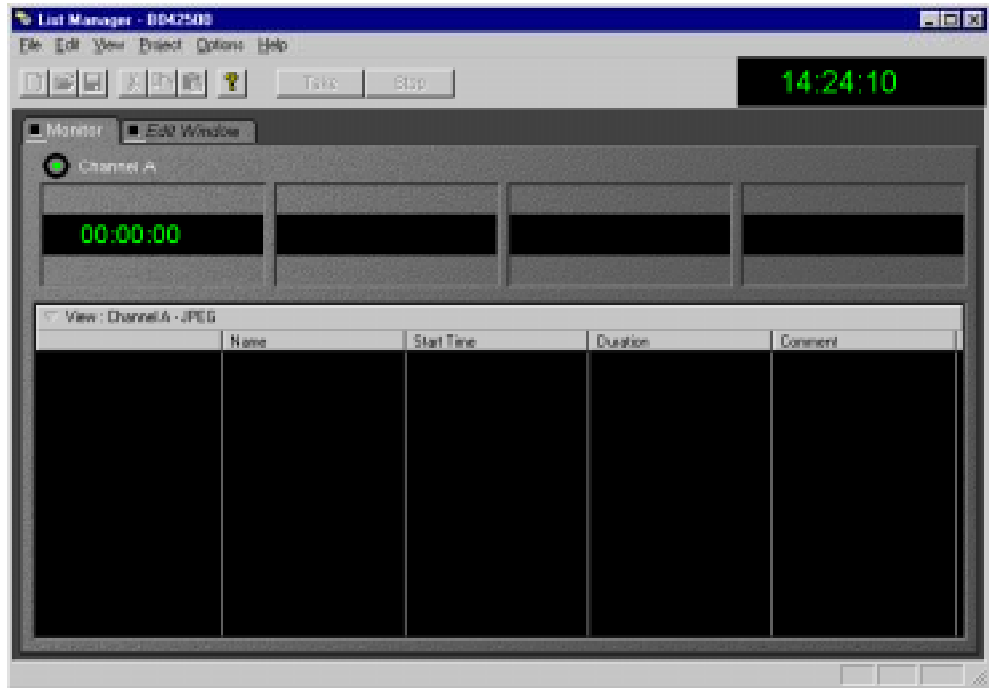
Figure 133. List Manager window

Whenever you start List Manager, a Hardware Communication Monitor is also started, if it is not already running. This program makes calls to the disk recorder, keeps track of the Profile host file (*profile.hst*) which lists Profile systems on the network, as well as remoting activities.
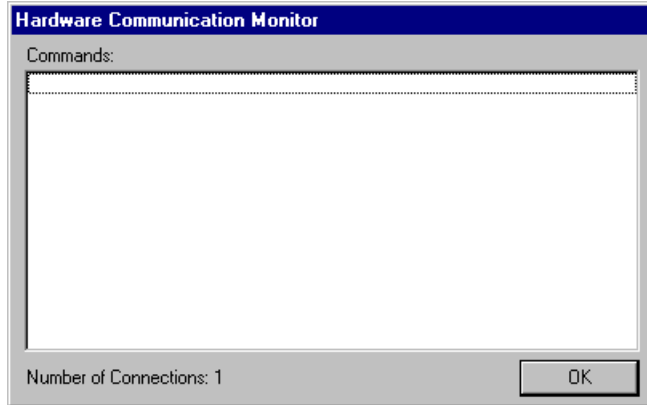
Figure 134. Hardware Communication Monitor message box

Viewing Help

To view Help topics:

• Choose **Help | Help Topics**.

Closing List Manager

To close List Manager:

• Choose **File | Exit**.

Configuring Resources

Before you can use List Manager, you must configure video, audio, and timecode resources, which are required for List Manager to operate. You configure resources with Resource Manager. To start this tool:

• Choose **Project | Configure**.

Resource Manager provides the means to add or remove channels (either JPEG or MPEG), add or remove video, audio, and timecode tracks, and assign inputs and outputs to those tracks. For detailed instructions on using Resource Manager, see "Using the Resource Manager" on page 313.

System resources used by List Manager are not available to other applications, whether or not a list is scheduled. If you try to start an application that requires the resources being used by List Manager, you'll be warned that those resources are not available. You can free up those resources for use by other applications by starting the Resource Manager, then setting the desired resources to None.

Connecting to a Remote Profile Machine

You can connect from your local machine to any remote Profile machine in your network. A local Profile machine refers to a Profile system to which you are directly attached. A remote Profile machine refers to a Profile system that is connected to your local system via an Ethernet local area network (LAN).

To connect to a remote Profile machine:

1. Choose **File | Remote Machine**. The Connect to Machine dialog box appears. The label *Local* appears after the name of the local Profile machine.
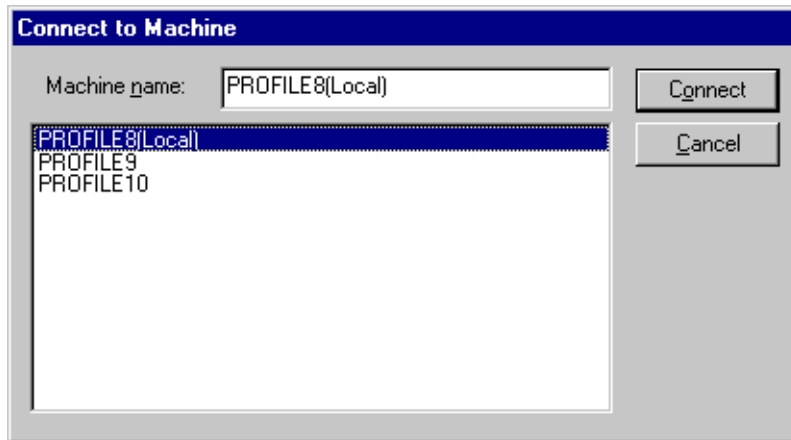
Figure 135. Remote Machine dialog box

To connect a Profile machine from the network host list:

1. Select the name of the machine in list box.

2. Click **Connect**.

3. The Connecting to Machine dialog box is displayed. If the connection is unsuccessful, you are given the opportunity to retry the connection or to cancel the operation.

   NOTE: To add a Profile machine to the network host list, see "Connecting to a Remote Machine" on page 110.

Building a Playback List

List Manager lets you use a simple graphical interface to build lists that automate your operations. You can drag media from the Media Manager into your list, then define things like when to play the material, and what channel and output to use.

Drag and drop of incompatible clips is not allowed. There are four types of channels. JPEG, MPEG Record, MPEG Play, MPEG Play/Record. JPEG channels allow only JPEG clips and MPEG channels allow only MPEG clips.

- JPEG channels - allow any type of events (play/record etc.)

- MPEG Play - allow any type of events except record

- MPEG Record - allow any type of events except play

- MPEG Play/Record - allow any type of events (play/record etc.)

Adding Media for Playback

Creating a playback list is the simplest of all List Manager operations. To build a playback-only list:

1. Click the **Monitor** tab to view of the On-air List. The first time you use List Manager, this list should be empty.

2. Scroll through the Media Manager tree to locate the first clip or master that you wish to include in your list.

3. Drag the clip or master into the List Manager window and drop it at the desired location in the list.

   You can add clips or masters between two existing events by dropping an event on the line separating the two events and selecting the top event. The item is inserted below the selected event.

4. Change the event settings to meet your needs. The settings are described in "Changing Event Settings" on page 289.

5. Continue adding clips or masters by dragging them onto the list. List Manager will perform the events at the scheduled time.

After adding a few events, your list should look similar to the one shown in Figure 136.
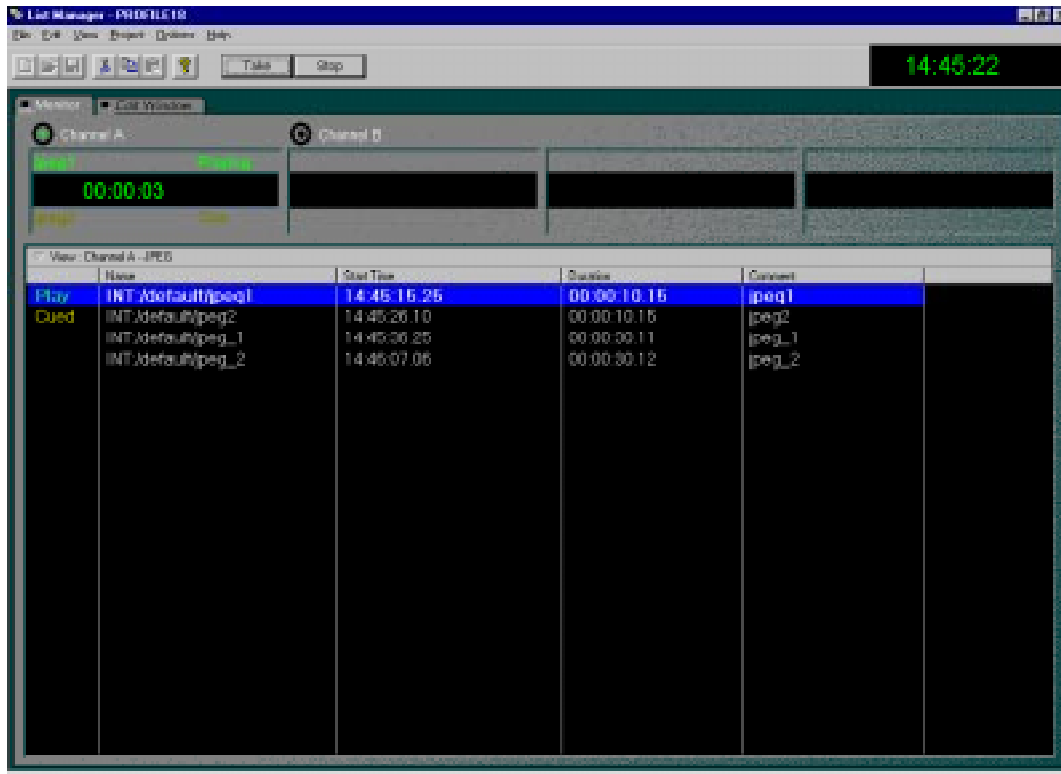
Figure 136. A basic playback list

Changing Event Settings

List Manager establishes default settings for each event as you drop material into the window. You can move from event to event in the list with the up and down arrow keys. You can customize the event by editing the property settings in the list. You can also edit property settings by double-clicking on the left end of the row, then changing settings in the edit boxes of the properties dialog box that appears. The dialog box for play event properties is shown in Figure 137.

Figure 137. Play event properties dialog box

By default, the list displays five columns: Status, Name, Start Time, Duration, and Comment. A label at the top of each column (except Status) identifies the settings in that column. Choose **View | Columns** to change which columns are displayed. (See "Customizing Your List Display" on page 308.)

Status - This cell displays the current status of the event. The word *Status* does not appear in the header. The Status column is active only in the On-air List (in the Monitor view). If there is a conflict between an event and any other event in the current list or another event on the On-air List, the Status cell displays *Error*. You can identify the conflict by right-clicking on the cell and reading the error message in the Event Property dialog box. Table 16 shows all the event status indicators.

Table 16. Event status indicators

Status	Color	Description
Play	Green	The event is currently being executed.
Record	Green	The audio and video from the specified input is currently being recorded as the Destination clip name.
Error	Red	The signal is in conflict with another event, or the material is not available.
Stop	White	The event is stopped.
Cued	Yellow	Approximately five seconds before Start Time, the required resources are prepared for playback or recording.
Take	White	Event is about to be executed.

Name - This cell identifies the clip or master name, whether it is being played or whether it is a new clip being recorded.

Start Time - You can enter the time at which you wish to play the specified material. Enter the time in standard timecode format (HH:MM:SS:FF). If the time entered consists of one or two digits not separated by colons, List Manager displays the entry as a number of seconds, not frames. For example, if the time entered is 25, List Manager displays 00:00:25:00. (Leading zeros are ignored—that is, 0025 is interpreted as 00:00:25:00.)

Duration - The duration of the playback event is set by the duration of the media. If you change the duration to one shorter than the media's duration, List Manager will play the material from the mark in point for the specified duration. If you enter a longer duration, List Manager plays the material from the mark in point to the last mark out point, then freezes on the last frame for the rest of the duration.

Comment - The Comment cell displays the name of the master or clip which you dragged into the window. You can change this to a title more meaningful to you. However, this will not change what clip or master is used, nor will it change its name.

Optional Columns

These are the columns that you can add to the window to provide you with additional event information.

Action - When you drag material into the List Manager window, Action is set to Play. The possible actions are: Play, Record, Switch, Transfer, and Archive. These options are described in later in this chapter.

Event Number - Events are numbered as they are added to the current list. The event number can't be changed because it provides a unique identifier for this event in the current list. The event number does not determine the playback order.

Parent - This setting uses the number of the event that precedes it, the "parent" event, and is valid only for Follow events. Any event can be a parent event as long as it has a Follow event after it.

Type - The event types are:

- The Absolute event type plays the material at the time specified in the Start Time. An Absolute event is always displayed in bold face in the list.

- The Follow event type plays the event immediately after the preceding event in the list. A Follow event is always displayed in regular face in the list.

- The Approx event type is queued but will not play unless you select the event from the list and then issue a Take command. An Approx event is always displayed in bold face in the list.

Date - Enter the date on which you wish the event to take place. Dates must be in the format used in your current Windows NT session, usually MM/DD/YYYY. The current date is entered by default.

Settings Unique to Transfer Events

Transfer events add these settings (refer to "Scheduling a Transfer Event" on page 298):

Source Media - The path name of the source media.

Source Profile - The name of the Profile unit where the media is stored.

Destination Media - The path name of the destination media.

Destination Profile - The name of the Profile unit to which the media is copied.

Settings Unique to Archive Events

Archive events have these added settings (see "Scheduling an Archive Event" on page 299):

Media - The name of the media (clip) that is to be archived or restored.

Path - The name of the directory path for the media.

Action - Click either **Archive** or **Restore**.

Cartridge - Under **Advanced**. Enter the bar code number for the cartridge—00000015, for example. This is an optional setting.

Partition - Under **Advanced**. Enter the partition number where the media is archived. This also is an optional setting.

Monitoring a List as it Runs

Events you enter in the Monitor view are performed at their appointed times. The current house time is displayed at the top of the window. You can monitor the progress of events on each channel in the channel panels. Each panel shows:

Air Time - The timecode of the current frame of material.

Duration - The duration of the current material.

Time Till Next Event - This clock counts down the time until the next scheduled event.

The current event is highlighted in green for easy identification; a cued event is highlighted in yellow.

Validating a List

The On-air List is validated automatically every few minutes. You should manually check any other list to make sure that you haven't scheduled conflicting events using the same Profile resources. To validate a list:

• Choose **Validate List** from the **Options** menu or from the shortcut menu with a right-click.

If a conflict arises, the word *Error* appears in the Status (left-most) column next to an invalid event. Three errors are at the root:

• The media does not exist. As a solution, bring in the correct media or verify that the name is correct.

• There is a conflict for a channel resource. For example, a channel resource would generate an error if it is scheduled for use at the same time by two or more events. To solve this problem, change the events so that they don't attempt to use the resource at the same time.

• The media is not long enough, that is, the media is shorter than the duration of the event. To fix this, shorten the duration of the event to match the media.

Scheduling a New Play Event

Another way to add events to a list is to open the New Play Event dialog box and enter the properties of the new event in the edit boxes.

1. Open the list to which you are adding the play event.

2. Choose **File | New Event | Play** to open the New Play Event dialog box as shown in Figure 138.

3. Fill in the edit boxes with the various event properties. If you select one of the repeat options, you'll need to enter time and date settings.

4. Click **OK** to close the dialog box and enter the new play event in the list.
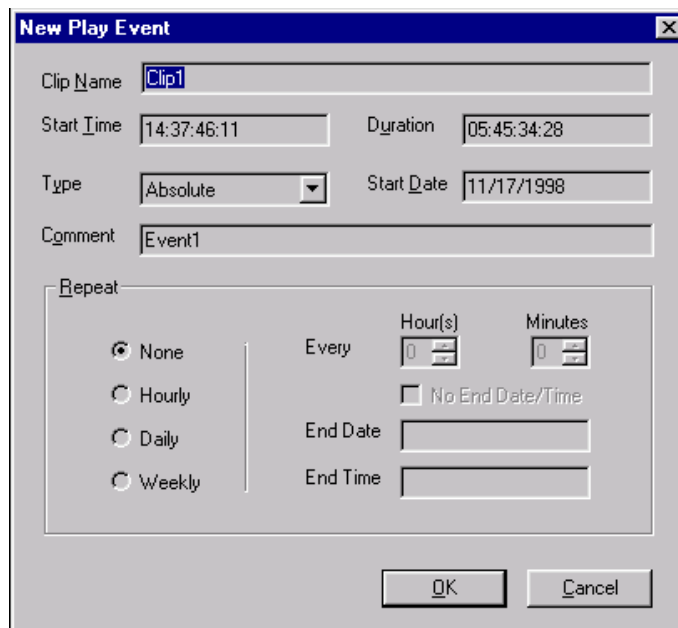
Figure 138. Creating a play event

Scheduling Recording Operations

You can schedule recording operations to take place automatically at predetermined times. For example, you may want to record a satellite feed during off-hours. Scheduling a recording operation is just as simple as a playback.

1. Open the list to which you are adding the recording event.

2. Choose **File | New Event | Record** to open the New Record Event dialog box as shown in Figure 139

Figure 139. Creating a record event

3. In the New Record Event dialog box, enter all the event information as described in "Changing Event Settings" on page 289. The clip is stored in the default bin with the name you enter in the Clip Name box.

4. Click **OK**.

Scheduling Rules and Constraints

Rule #1: Absolute events always start at the scheduled time.

• Of multiple absolute events inserted at the same time, the last inserted absolute event is the one that is scheduled.

• If an event's end time overlaps an absolute event start time, that event is shortened so that the absolute event starts on time.

Rule #2: An approximate event always cues if it is the next event in the time line.

• A cued approximate event is de-cued 150 frames prior to the start time of an absolute event (see rule #1).

• Approximate events remain in the list during their *aging* process. The aging process allows approximate events to stay cued past their start time.

Allow at least fifteen seconds for a channel to switch between record and playback. The 15-second gap is used in the following manner: 5 seconds for queuing, 5 seconds for de-queuing, and 5 seconds to account for transition gap.

Allow at least 10 seconds between starting a recording on one channel and playing that clip on another channel. The 10-second delay allows the material to exist at least 5 seconds prior to queue time.

In the situations described here, use absolute events rather than approximate events, because the rules for approximate events allow them to exceed the constraints.

Using a Live Feed

To further automate station operation, you can integrate live feeds into your lists. For example, you may want to broadcast a live event, inserting stored commercials at appropriate times.

1. Open the list that you want to add a live event to.

2. Choose **File| New Event | Switch** and the New Switch Event dialog box appears, as shown in Figure 140.
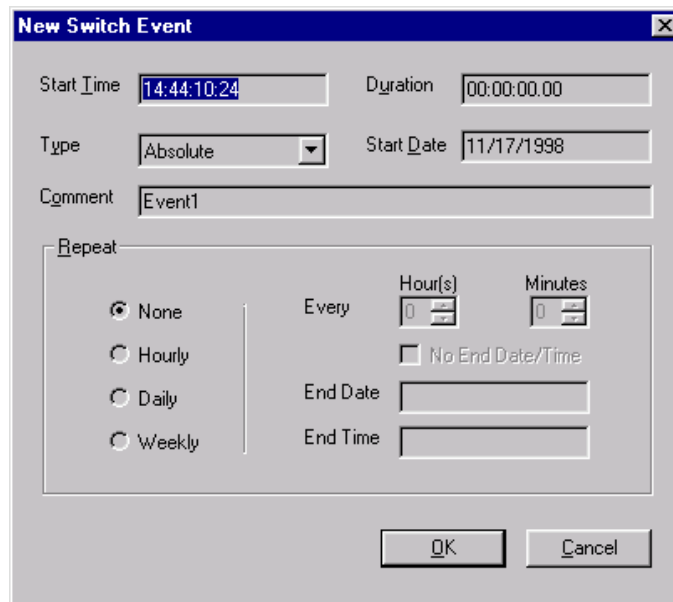
Figure 140. New Switch Event dialog box

3. In the New Switch Event dialog box, enter all the event information as described in "Changing Event Settings" on page 289. This will set the cross-point switch for the channel so that your video input is routed directly to the output. In a PDR 100, audio inputs are **not** routed to audio outputs for switch events; however, they are routed to audio outputs in the PDR 200 and PDR 300.

4. Click **OK**.

Scheduling a Transfer Event

You can schedule transfer events in your lists. A transfer event schedules the copying of media from one Profile video disk recorder to another Profile unit on the network (requires Ethernet and Fibre Channel connections). Only one Transfer event may be scheduled at one time.

1. Open the list to which you wish to add the live event.

2. Choose **File | New Event | Transfer** and the New Transfer Event dialog box appears, as shown in Figure 141.

Figure 141. New Transfer Event dialog box

3. In the New Transfer Event dialog box, enter all the event information as described in "Changing Event Settings" on page 289.

4. Click **OK**.

Scheduling an Archive Event

You can schedule archive events in your lists. An archive event copies media to or from a Profile library system, such as the PLS 200. The PLS 200 must be attached to a Profile system running the Event Scheduler engine.

1. Open the list to which you wish to add the live event.

2. Choose **File | New Event | Archive** and the New Archive Event dialog box appears, as shown in Figure 142.

Figure 142. New Transfer Event dialog box

3. In the New Archive Event dialog box, enter all the event information as described in "Changing Event Settings" on page 289.

4. Click **OK**.

Editing Event Lists

You can reorganize your event lists at any time. While you can change the settings for each event in a list, sometimes you'll want to change the order of events, or add, replace, or delete events from the list. The following sections describe how to organize your lists to meet your needs.

Changing the Order of Events

You may want to change the order of events in your list. There are two ways to do this:

• If an event's type is set to Absolute, you must:

   - Change the Start Time of the event so that it starts at the desired time.

• If an event's type is set to Follow, you can:

   - Select the event by clicking on the event in the left-most column of the window, then drag the event to its new position to the list. You can move several events by using the standard Windows operations to select a range of events (Shift-click to select a range or extend it), then drag the selection.

Inserting Events

To insert an event in a list from a Media Manager window:

1. Select a clip or master in the Media Manager contents pane.

2. Drag the material to the List Manager window.

3. Drop the material in the list where you want to place the new event. The new material is dropped below the highlighted event.

To insert an event elsewhere in a list:

1. Select the event that you want to insert elsewhere.

2. Drag the desired event and drop it on the event. The event is placed below the selected event.

Removing Events From a List

The On-air List grows as you add events. You may want to reduce the size of the On-air List by deleting events that have been performed and whose status is now Done. To remove unwanted events from a list:

1. Select the unwanted event. You can select several events by using the standard Windows operations to select more than one event (Ctrl-click to add an event to the selection, Shift-click to select a range of events).

2. Delete the event or events using **Ctrl-X**, or **Edit | Cut**, or the **Delete** key. You can also choose **Delete** from the shortcut menu with a right-click.

3. Click **Yes** to confirm that you want to delete the event.

Using the Edit Window

You can use the Edit window to build lists in exactly the same way as you did in the Monitor view. The lists you build in the Edit window will not be scheduled until you choose the **Edit | Schedule List** command from the Edit menu.

The Edit window allows you to create and store lists that you want to reuse. By saving your lists, you can use them on a daily or weekly basis without having to rebuild the list each time. For example, you may want to use this for inserting commercials in network feeds.

Creating a New List

To create a new list:

1. Choose **File | New** and the New List dialog box appears.
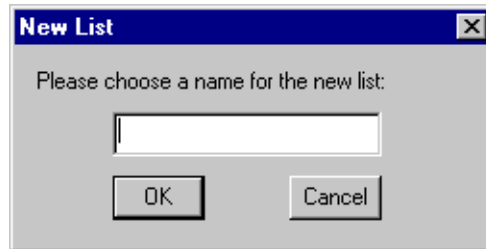
Figure 143. New List dialog box

2. Enter a name for the list. Click **OK** to save the new list.

Saving a List

You must save a list to your system's hard disk if you want to use it at a later date. To save the list:

1. Choose **File | Save As**.

2. Enter a different name for the list. Click **OK** to save the list.

Reusing a List

There are two ways to reuse a list that you created earlier:

1. In the Edit window, choose **File | Open** and select the desired list. When the list opens, choose **Edit | Schedule List** to integrate the list into the On-air List.

2. In the Monitor view, drag the list from a Media Manager window to the On-air List. The dragged events are added to the bottom of the On-air List. Make sure you select the appropriate channel before dragging in the list, then change the Channel settings to match.

In either case, List Manager checks for conflicts with events already in the On-air List. If it finds any conflicts, such as events using the same channel or output at the same time, it will report these errors so that you can take corrective action. The word *Error* will appear in the status cell of the event causing the conflict. Right-click on the event, choose Event Property (Alt-Enter), and read the error information in the Event Properties dialog box. You can also double-click the event to get properties.

Closing a List

To close a list:

• Choose **File | Close List**.

Exporting a List

To export a list into an ASCII text file (*.lst*):

1. Click the Edit window tab.

2. Choose **File | Export**. A dialog box appears.

3. Enter the a name of the file you want to save in the File Name box.

4. Click **OK**. The *.lst* extension is added to the file name automatically.

List File ASCII Text Format

The file format for an ASCII text list file follows these rules:

- A line beginning with pound sign (#) is treated as a comment.

- Each event is saved on a single line in the text file.

- Individual fields of an event are separated by a comma (,).

- White spaces are allowed before and after field delimiters.

- Fields are case insensitive.

The format for each event is: Action, Clip Name, Start Time, Duration, Type, Start Date, Comment, other required fields depending on the action.

There are several other rules for list files saved as text:

- The first event in the list file has to be an absolute event, otherwise it is an error.

- A follow event will be on the line following the parent event in the list file.

- Each event can have only one follow event.

- Empty lines will be ignored while parsing.

- An error occurs if all the fields for a particular type of event are not present.

- If an error is detected in any event while parsing the list file, the event list will not be created for that file.

- The date field will be of the format **mm/dd/yyyy.**

- Time field (both start time and the duration) will be in the format Hour:Min:Sec:Frames or Hour:Min:Sec.Frames.

- Allowed event actions are: Play, Record, Switch, Archive or Transfer.

- For play and record events, the Clip Name, Start Time, Start Date, Duration, Comment will be saved in the list text file.

- For a switch event, Start Time, Start Date, Duration, Comment will be stored in the list text file.

- For Transfer event source Profile (Machine Name or IP address), destination Profile (Machine Name or IP address), source media and the destination

media will be stored in the text file.

- For Archive event Cart Label, Clip Name, Partition Number and the Option (Keep/Delete clip after archiving) will be saved.

Here is a sample list file in ASCII text format:

```
# Play event.
# The format is Action, Clip Name, Start Time, Duration, Type,
# Start Date, Comment
Play, INT:/Default/River Rafting, 05:10:20:00, 00:01:30:00,
Absolute, 02/02/1997, River Rafting
# Record event.
# The format is Action, Clip Name, Start Time, Duration, Type,
# Start Date, Comment
Record, INT:/Default/Pepsi commercial, 05:10:20:00,
00:01:30:00, Absolute, 02/02/1997, Commercial1
# Switch event.
# The format is Action, Start Time, Duration, Type, Start Date,
# Comment
Switch, 05:10:20:00, 00:01:30:00 Absolute, 02/02/1997, Coke
# Archive event.
# The format is Action, Start Time, Duration, Type, Start Date,
# Comment, Clip, Name, Cart Label, Path, Partition Number
Archive, 05:10:20:00, 00:01:30:00, Absolute, 02/02/1997, Ad1,
Surf Soap, Label1, INT:/Default, 1
# Transfer event.
# The format is Action, Start Time, Duration, Type, Start Date,
# Source Profile, Destination Profile, Source Media,
# Destination Media, Comment
Transfer, 05:10:20:00, 00:01:30:00, Absolute, 02/02/1997,
Profile1, Profile2, Soap, Surf Soap Ad, New Surf Ad
```

Importing a List

You can import a list that has been previously exported to an ASCII text file
(*.lst*). To import a file:

1. Click the Edit window tab.

2. Choose **File | Import**. An Open dialog box appears, displaying files of type
   .lst in the path *c:\profile*.

3. Select the name of the file you want to import. Double-click the file name or
   click **OK**.

Deleting an Entire List

To remove an entire list:

• Choose **Edit | Delete List**.

Overriding Events in a List

Not every operation in your environment can be predicted to the second. In some instances, you'll want to be able to interrupt an event as it's playing, or stop a list completely. List Manager provides you with the tools you need to meet these challenges.

Taking an Event

As your list executes, you may want to manually choose a particular event and start playing it immediately. For example, you may have inserted a very long Switch event to use a live feed, but you now want to run a commercial. List Manager lets you immediately use any event in your list.

1. Schedule your list normally.

2. Monitor the list by clicking the **Monitor** tab. Make sure you can see the channel that will execute the event you wish to take.

3. Highlight the event that you want to use immediately.

4. Click the **Take** button. The event begins five seconds later.

5. The list will continue running all the events which would normally be performed after the Take event. It will not return to the event that was interrupted, unless you highlight that event and use the **Take** button again.

   NOTE: An Approx event type is not a scheduled event. You must take an event of type Approx to run it.

Stopping an Event

List Manager provides a way to stop a event at any time. You can use the Stop button to interrupt the event on the current channel. To stop an event:

1. Locate the event which is currently being executed (highlighted in green) and select the event.

2. Click the **Stop** button to stop the event.

3. After a few seconds, the event will stop and the video output will display black.

Customizing Your List Display

You may find that the default list display does not meet your needs. For example, you may have long input names that are not visible because the Name column is not wide enough. If you never use List Manager to schedule Record events, you might not want to see the Source column at all.

You can change fonts, text color, and highlight color in a list display. To change a font:

1. Choose **View | Font** and the Font dialog box appears (Figure 144).
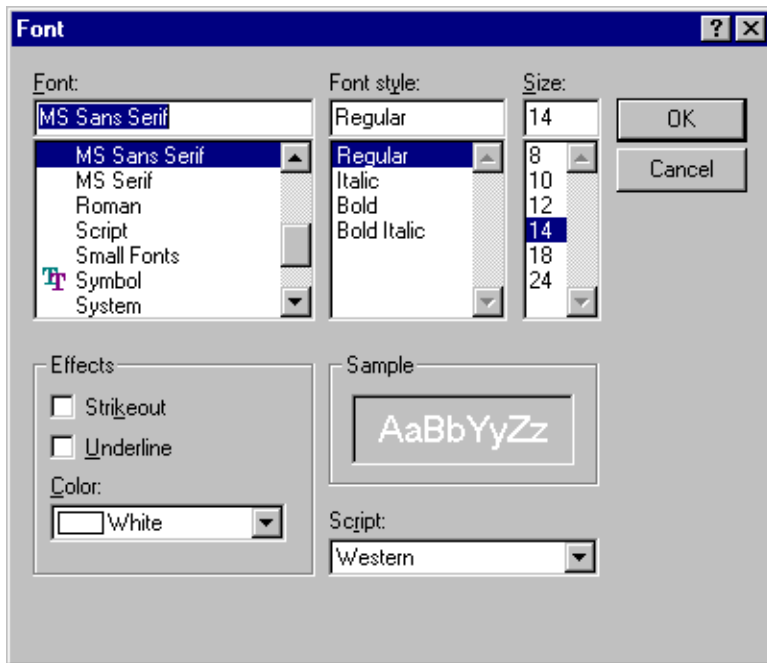
Figure 144. Font dialog box

2. Enter your changes. You can change the font, font style, font size, and color. You can also underline and strike out the text.

3. Click **OK**.

    NOTE: Absolute events are always shown in bold face and Follow events are displayed in regular face.

You can change the text color another way besides the Font dialog box, as well as the text highlight (background) color. The Color dialog box allows you a much broader range of colors than the Font dialog box. The change the text's color or highlight color:

1. Choose **View | Color | Text** or **View | Color | Highlight** and the Color dialog box appears (Figure 145).
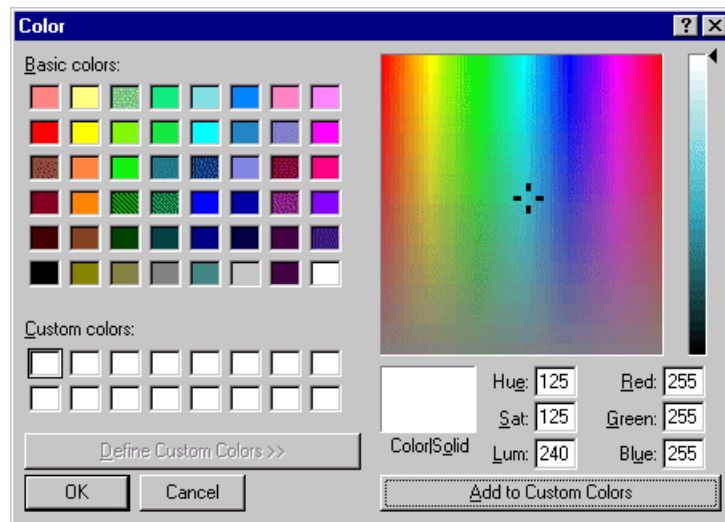
Figure 145. Color dialog box, with custom color controls shown

2. To select a preset color, click one of the basic 48 colors and then **OK**.

3. To create a custom color, move the cursor in the rainbow window until you find the color you want, then click **Add to Custom Colors**. The color is added to the array of custom color boxes.

4. To select a custom color, click on one of the custom color boxes that contains a custom color, then click **OK**.

You can change which columns to display, the size of the columns and order of the columns in the list display. You display up to 10 columns in a list. By default, the Name, Start Time, Duration, and Comment columns are displayed. You can add columns for Action, Event Number, Parent Event, Type, and Date. You can also make a column as wide or as narrow as you want, or make it disappear completely. You can move one or several columns to the left or right to arrange them in an order that you find more convenient.

To add a column to a list display:

1. Choose **View | Columns** and Columns dialog box (Figure 146).
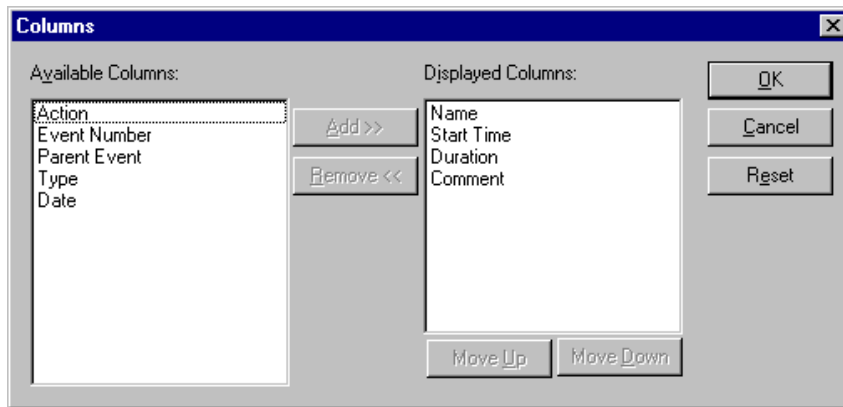
Figure 146. Columns dialog box

2. Click on a column label in the Available Columns box.

3. Click **Add**. The column label moves to the Displayed Columns box.

4. To change the order of the columns, click a column label in the Displayed Columns box, then click **Move Up** or **Move Down**.

5. To return the columns to their original settings, click **Reset**.

6. Click **OK** when done.

To adjust the size of a column:

1. Position the mouse pointer over the right border of the column title of the column you wish to adjust. The pointer changes to a sizing shape.

2. Drag the border to the right to widen the column, to the left to make the column narrower.

3. Drop the border at the desired column width.

4. Drag the right border completely to the left to reduce the column width to nothing, removing the column from the display. To make the column visible again, double-click on the border you dragged, then follow steps 1. and 2..

To change column order:

1. Select the column you wish to move by clicking on its title. You can select more than one column by clicking in one column title, then dragging the mouse pointer through the adjacent titles you wish to select.

2. Drag the selected column or columns to the desired destination.

Using the Event Log

As events are performed in the On-air List, a record of those operations is kept in a file called *c:\profile\evntsch.log*. You can extract information from this log file for record-keeping, billing, or any other purpose where accurate records are required.

The information in the log file is stored as ASCII text in tabular form, separated by commas. You can use a text editor to read the file, but be careful not to save any changes you may make. You can see an example of a section of a log file in Figure 147.

Figure 147. An example of a log file

The Scheduled Duration field shows the value entered in the On-air List. It does not show the actual duration of the event. The times shown in the Start Time and End Time fields are actual times which can be used to calculate the event duration.

The List Name field shows the name of the original list containing that event, which subsequently was Scheduled and became part of the On-air List

When the log file reaches about four megabytes in length, the information in the file is moved to a new file called *evntsch1.log* and kept as an archive. This ensures that *evntsch.log* always contains current information, but keeps its size manageable. Subsequent archived information will be stored in *evntsch2.log*, *evntsch3.log*, and so on.

Using the Resource Manager

The Resource Manager lets you assign system video, audio, and timecode resources and configure operational settings for one or more Profile channels. These resources are used by the Tool Box Editor, List Manager, and Time Delay.
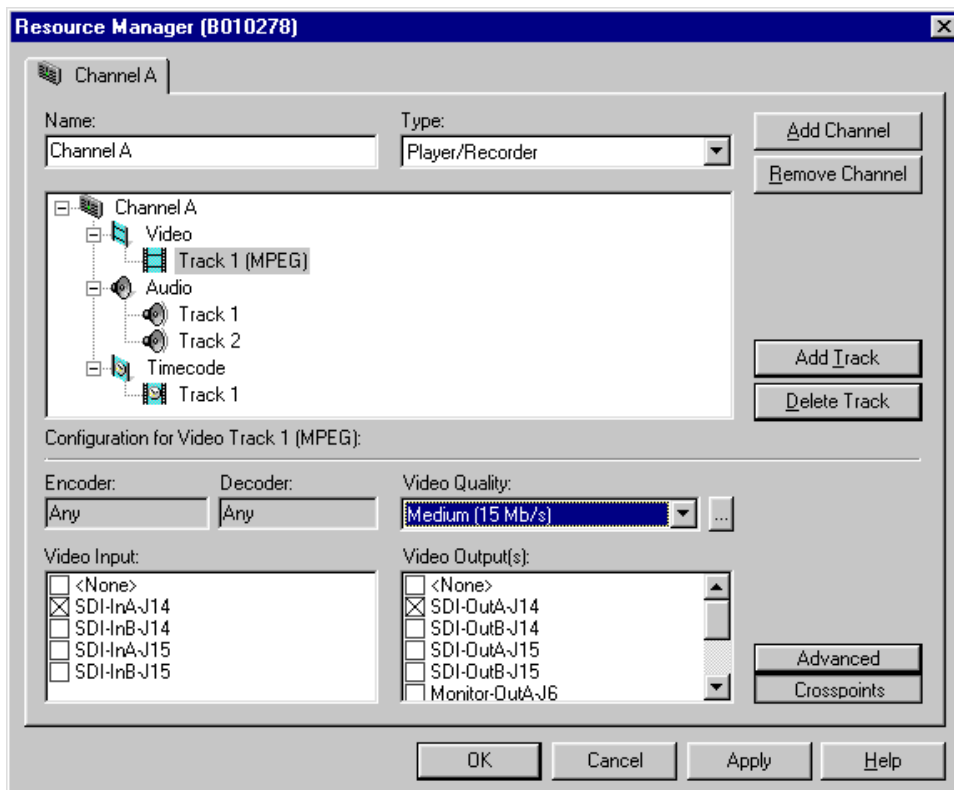
Figure 148. Resource Manager dialog box

The channel resources that you can configure with Resource Manager include:

- Video inputs and outputs
- Video codecs (JPEG)
- Video encoders and decoders (MPEG)
- Audio inputs and outputs
- Timecode sources (inputs and outputs)
- Timecode codecs

Operational settings include:

- Video quality (compression)
- Field dominance
- Still play mode
- Audio window size
- Timecode generator settings

Configuring Resources

Before you can make use of a Profile application, you must allocate Profile resources such as video inputs and outputs for its use. These resources are assigned to channels for use by the application. Once the resources are allocated, they are unavailable for other applications. You must manage Profile resources to ensure that each application is able to use the required resources when it needs them.

To gain access to Resource Manager and configure Profile resources:

- In Tool Box Editor choose **Config | Resources**.

- In List Manager choose **Project | Configure**.

- In TimeDelay choose **Config | Resource Manager**.

The Resource Manager is available when an application is running, unless media is loaded on a timeline.

Assigning Profile Channels

Your first step is to acquire one or more Profile channels. The single channel tab labeled *Channel A* is the default. You can change the name of the channel by entering a new name in the Name text box. Channel names can have up to 32 characters, but a shorter name is recommended for readability.

Depending on your system, you can configure channels up to a limit set by the application; however, some systems only have two channels (ports). To add a channel, click the **Add Channel** button. To remove a channel, click the **Remove Channel** button. One channel is always visible.

A resource such as a video input is available when the checkbox next to its name is empty and its name is in dark print. If the resource is in use, its name is dimmed. If it is in conflict, that is, in use by another application or channel, its name appears in red. If it is requested, the checkbox next to its name is marked.

Configuring Video Resources

To configure video resources:

1. Choose a video track in the configuration tree, such as **Track 1 (MPEG)**.

2. Choose an appropriate channel type: **Player/Recorder**, **Player**, or **Recorder** (see Figure 149). Depending on the channel type, different codec or encoder/decoder information is displayed below the configuration tree as listed in Table 17.

Table 17. Channel types

Channel Type	MPEG	JPEG
Player/Recorder	Encoder and decoder resources	Codec resource
Player	Decoder resource only	Codec resource
Recorder	Encoder resource only	Codec resource
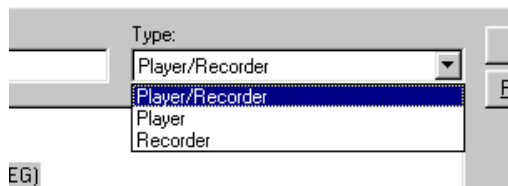
Figure 149. Choosing a channel type

3. To add a video track, click the **Add Track** button and the Add Track dialog box appears (see Figure 150). Click **Video**, then select either **JPEG** or **MPEG**, depending on the type of track you want. Click **Add** when done. The new video track icon will appear in the configuration tree.

NOTE: JPEG and MPEG tracks cannot be mixed. Therefore, before you can add an MPEG track, you must remove all JPEG video tracks, or before you can add a JPEG track, you must remove all MPEG tracks.
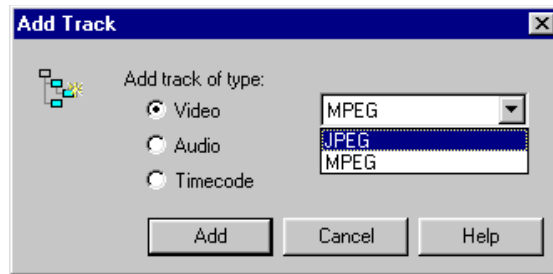
Figure 150. Add Track dialog box for video

4. In the Video Quality list box, select a video quality if you want something other than the default (Medium). The higher the quality, the more disk space is used.

5. To make a custom quality setting, click the button next to the Video Quality list box, and the Custom Video Quality Settings dialog box appears. Select either **Custom1** or **Custom2** in the Video Quality list box. When selected, you can change the name of a custom setting.

   - For JPEG (see Figure 151 and Table 18), select a video quality with the slider.

   - For MPEG (see Figure 152 and Table 19), move the diamond on the grid to change the bit rate and group of pictures (GOP) settings, and click the button for the desired chrominance setting. The **High**, **Medium**, **Low**, and **Draft** buttons select the preset bit rates and GOP settings, which can be useful as reference points when you are making a custom setting. Click **Undo** to undo changes, and click **OK** when done.
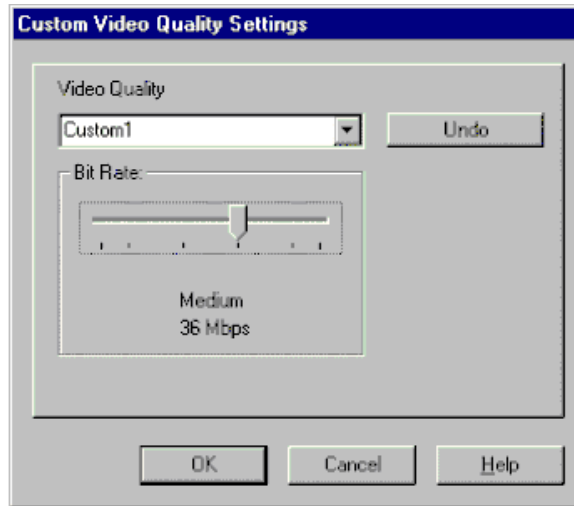
Figure 151. Custom Video Quality Settings dialog box, JPEG

Table 18. JPEG Video Quality Settings

Quality Settings	Compression in Mbps
Draft	12
Low	24
Medium (default)	36
High	48
Custom 1 or 2	6 - 54 in increments of 6 (24 default)
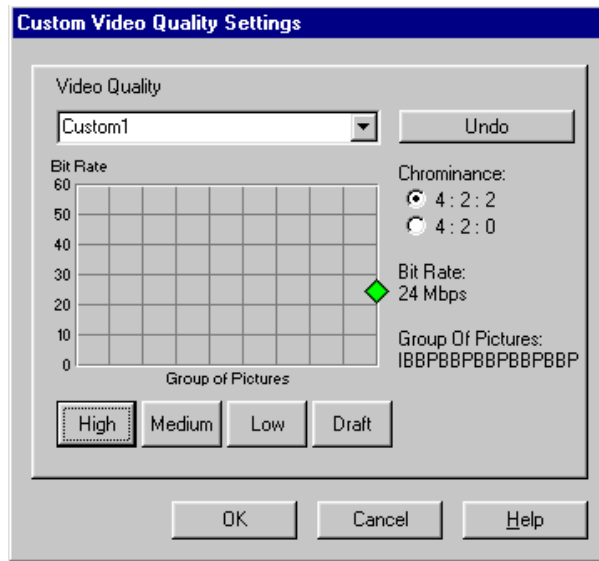
Figure 152. Custom Video Quality Settings dialog box, MPEG

Table 19. MPEG Video Quality Settings

Quality Settings	Compression in Mbps	Chrominance	GOP
Draft	4	4:2:0	IBBPBBPBBPBBPBBP (default)
Low	8		
Medium (default)	15	4:2:2	
High	24		
Custom 1 or 2	4-44 in increments of 4 (12 default)	4:2:2 (default) or 4:2:0	Choose from I, IP, IBP, IBBP, IBPBP, IBBPBBP, IBPBPBPBP, IBBPBBPBBP, IBBPBBPBBPBBPBBP, and IBBPBBPBBPBBPBBP(default)

6. Click the **Crosspoints** button and then select a video input from the Video Input check boxes (see Figure 153 for MPEG or Figure 154 for JPEG). The names of video inputs are determined by the system configuration created with the Configuration Manager application (see Chapter 2, "Using the Profile Configuration Manager"). You can choose only one video input at a time per track.

7. Click the **Crosspoints** button and then select video outputs from the Video Output(s) check boxes. The names of video outputs are determined by the system configuration created with the Configuration Manager application (see Chapter 2, "Using the Profile Configuration Manager"). You can choose one or more video outputs at a time. Each output corresponds to one of the video output connectors on the back of the Profile. Once allocated, other Profile channels cannot share assigned video outputs.
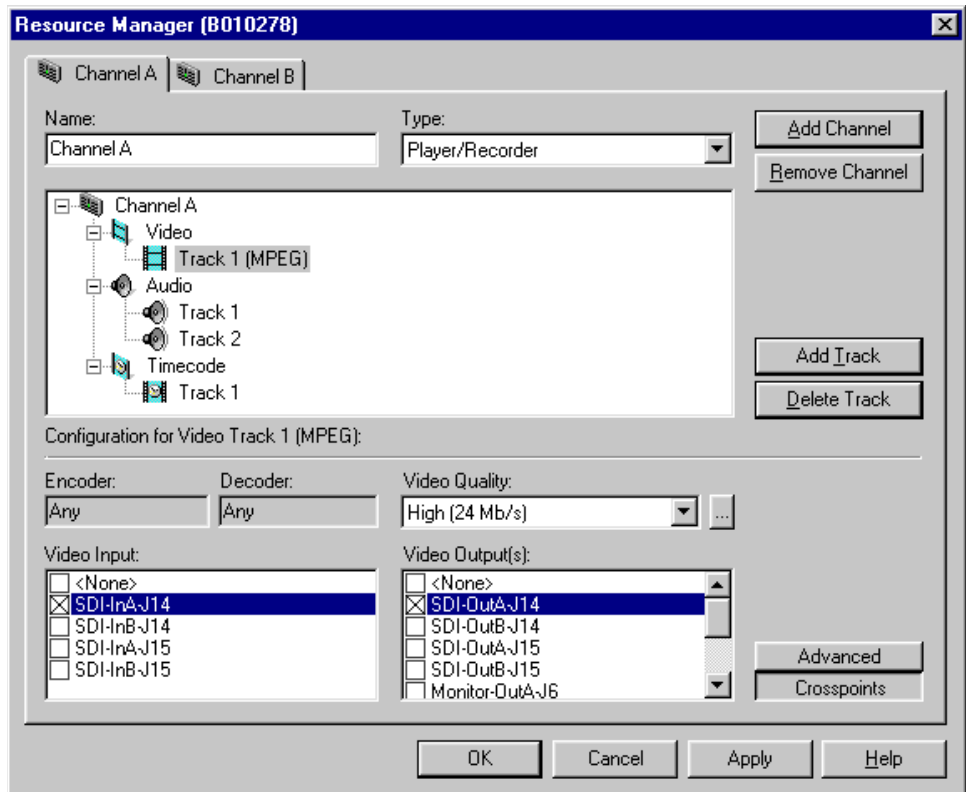
Figure 153. MPEG video track settings
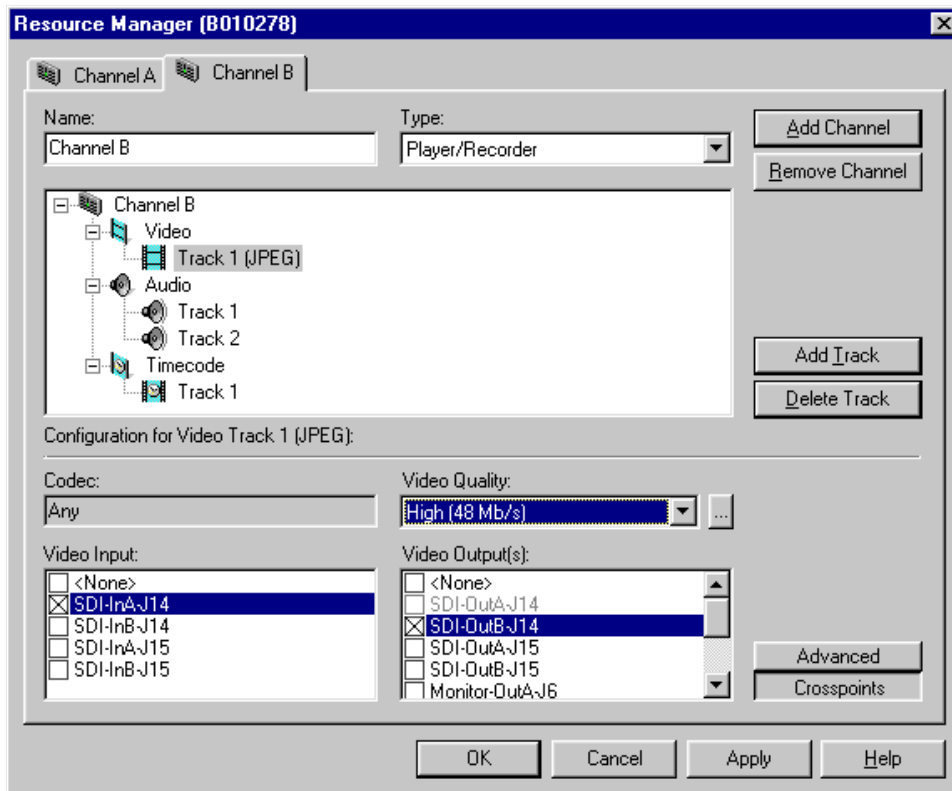
Figure 154. JPEG video track settings

NOTE: Use of the Advanced panel as described in the following step is necessary only if you want to specify the exact codec resource to be used. By default the system will choose a codec resource for you based on availability. This default option is indicated by displaying "Any" for your codec selection.

8. Click the **Advanced** button and make encoder and decoder selections for MPEG (see Figure 155), or a codec selection for JPEG (see Figure 156). You can choose only one video encoder, decoder, or codec at a time.
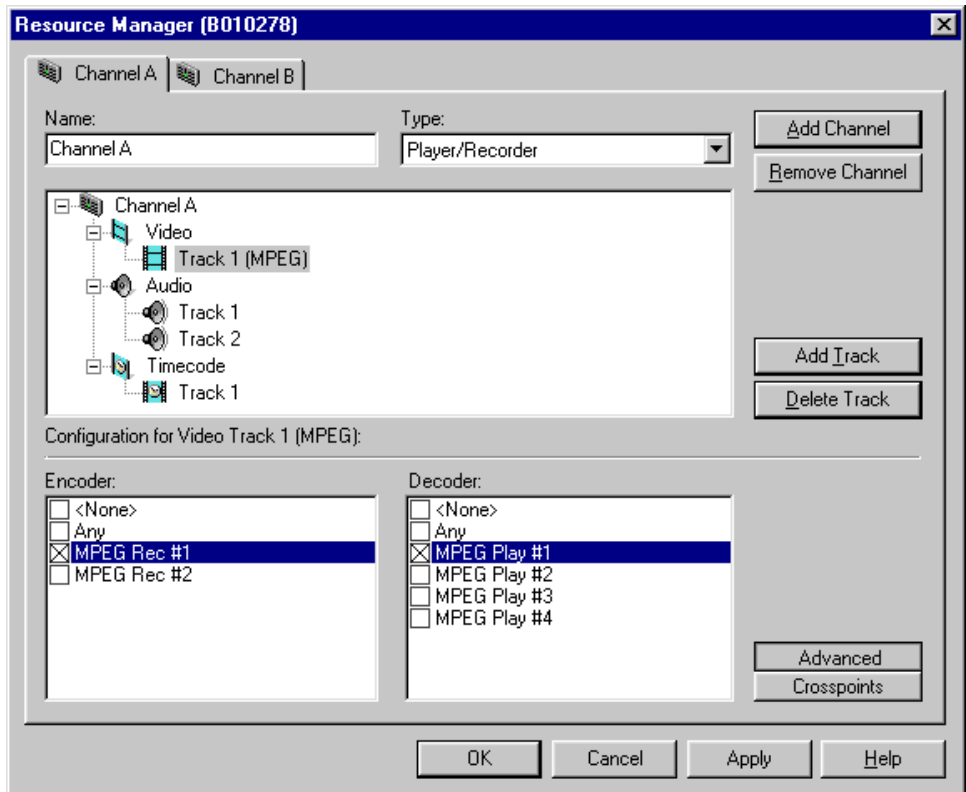
Figure 155. MPEG encoder and decoder check boxes
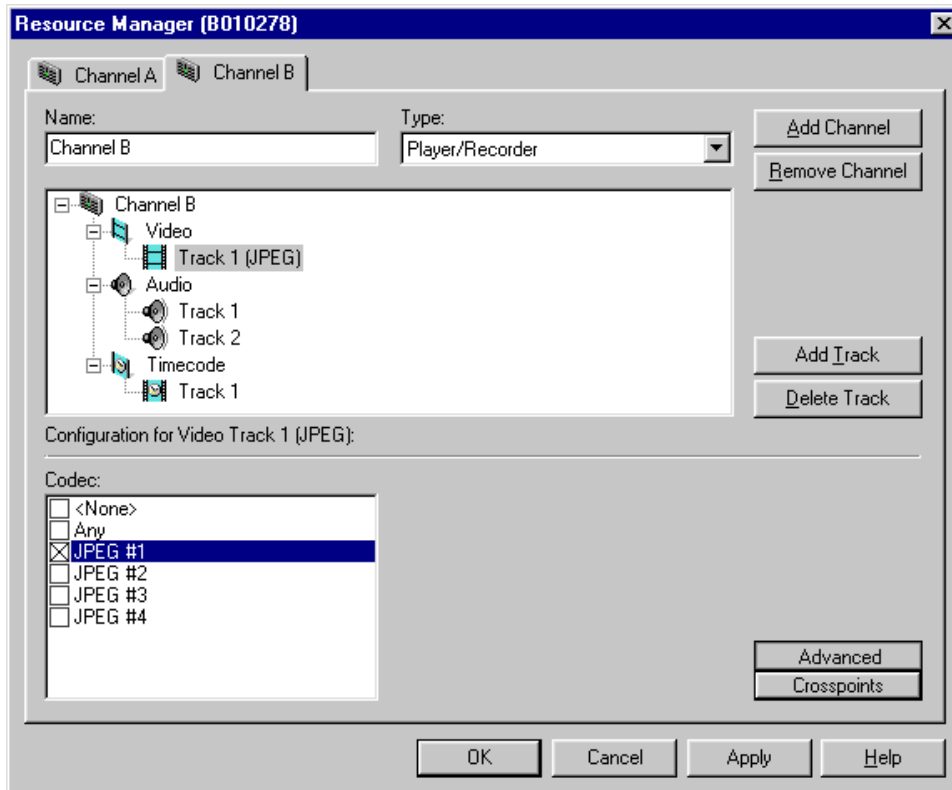
Figure 156. JPEG codec check boxes

Field and Frame Setup

NOTE: You can select field dominance only for JPEG. MPEG is set by default to Field 1 dominance.

To set field dominance and still-play mode:

1. Select the Video icon in the configuration tree; the field dominance and still-play mode controls appear at the bottom of the Resource Manager dialog box (see Figure 157).

2. Field dominance determines which field is the mark-in or mark-out point for the frame. The default is Field 1. To set it to Field 2, click the button.

3. Still-play mode determines whether your still frames are interlaced or line-doubled. **Line-Double** is the default. With **Interlaced**, you may get some flicker in still display. Line double reduces flicker. Click the button you want.

The **Field /Frame Setup** button is always depressed because when the *Video* track type is selected, the Field Setup panel is the only panel available
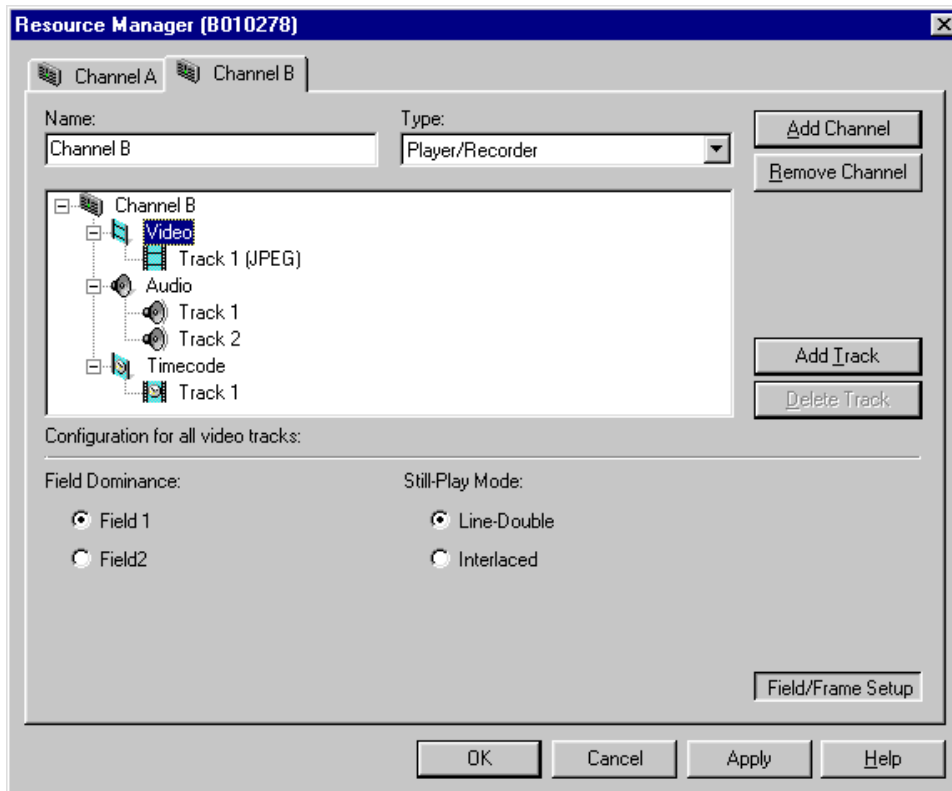
Figure 157. Field/Frame Setup controls

Configuring Audio Resources

Configuring audio resources for a channel involves adding one or more audio tracks to the channel, and selecting an audio input for each track. When you select the audio input for the track, the corresponding output is automatically selected. For instance, if you select AES/EBU-In1-J5 for your input, AES/EBU-Out1-J5 is automatically selected as the output. Likewise, if you select an output, the corresponding input is automatically selected.

To configure audio resources:

1. Select the audio Track icon in the configuration tree. With the **Crosspoints** button selected, the Audio Input and Output check boxes appear at the bottom of the Resource Manager dialog box (see Figure 158).
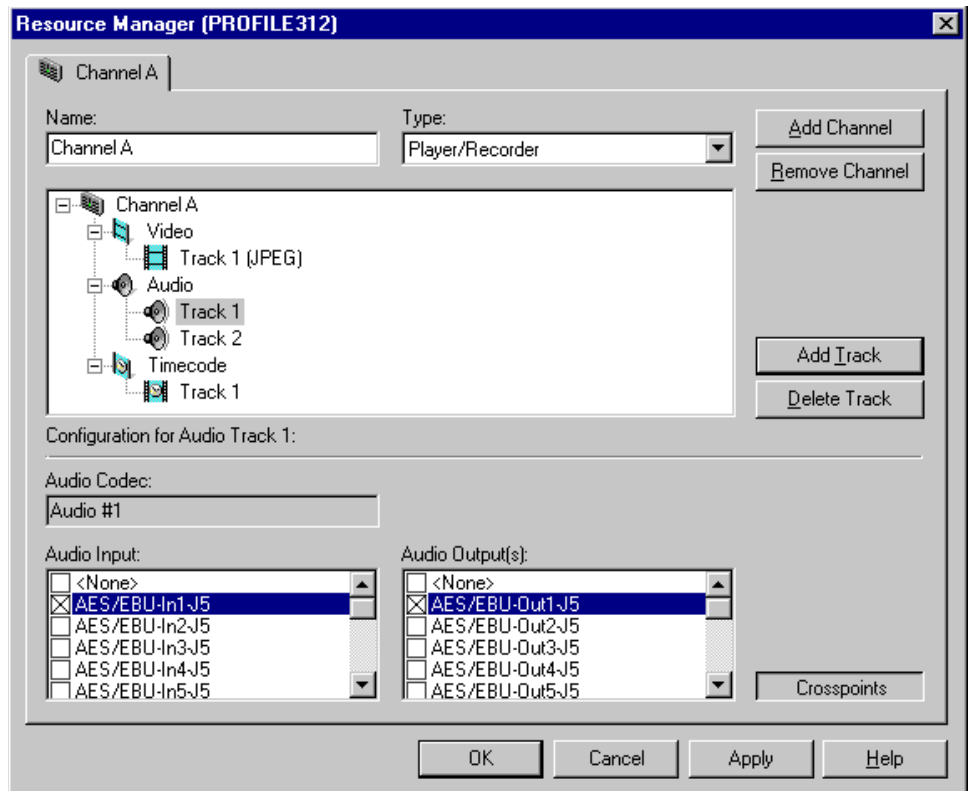
Figure 158. Audio inputs and outputs

2. To add an audio track, click the **Add Track** button. In the Add Track dialog box that appears (see Figure 159), click **Audio**, then enter the number of tracks you want to add. Click **Add** when done. The new audio track icons will appear in the configuration tree.
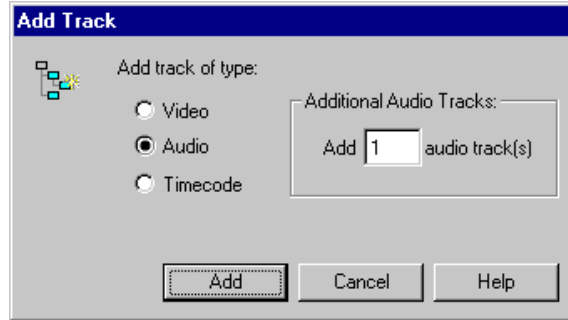
Figure 159. Add Track dialog box for audio

3. For each audio track, choose an audio input or audio output by selecting a check box in the appropriate list.

Audio Window Setup

The audio window is a segment of audio that is heard when you move through a clip at higher-than-play speed. You can specify the size of the window, and thus the amount of the audio that you hear, by selecting a number of fields.

To set the audio window size:

1. Select the Audio icon in the configuration tree.

2. From the Audio Window Size box that appears, select a size from the three available choices: 5 fields, 10 fields (default), and 20 fields.
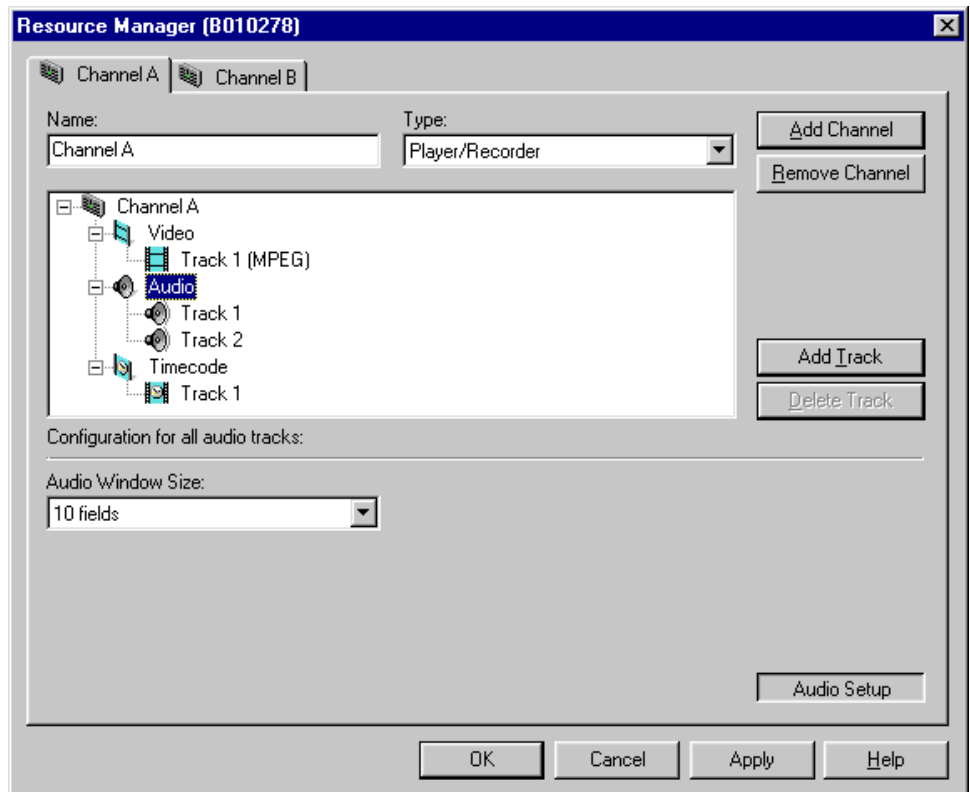
Figure 160. Audio Window Size list box

Configuring Timecode Resources

To configure timecode resources:

1. Click on a Track icon under the Timecode icon in the configuration tree and, with the Crosspoints button clicked, the Timecode Input and Output check boxes appear at the bottom of the Resource Manager dialog box (see Figure 161).
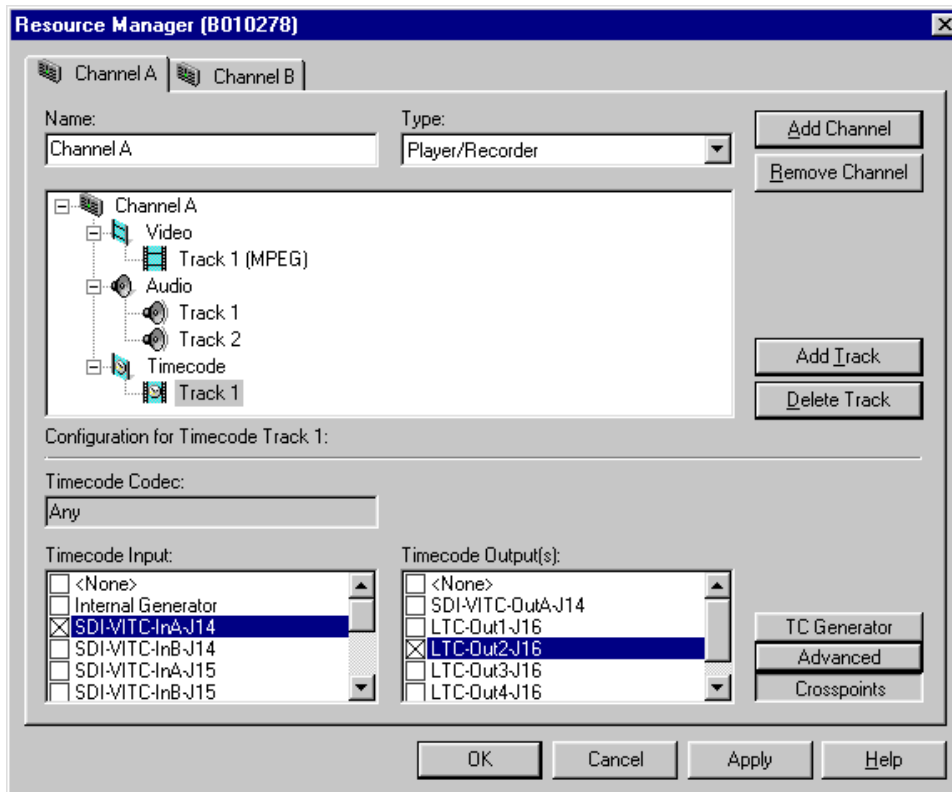
Figure 161. Timecode Input and Output check boxes

2. To add a timecode track, click the **Add Track** button. In the Add Track dialog box that appears (see Figure 162), click **Timecode**, then click **Add**. The new timecode track icon will appear in the configuration tree.
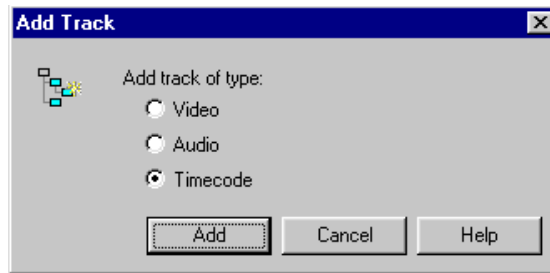
Figure 162. Add Track dialog box for timecode

3. Select a timecode input under Timecode Input. You can record timecode from an internal generator, genlock VITC, LTC inputs, or a VITC input from a Profile video input.

4. Select a timecode output under Timecode Output. The default timecode output is None. You can choose either a VITC output from a Profile video output or an LTC output.

   NOTE: VITC outputs appear in the Timecode Output list box only if the corresponding video outputs have been selected for the same channel. For example, "SDI-VITC-OutA-J6" appears in the Timecode Output list box for Channel A only if you've selected "SDI-Out-J6" as a video output for Channel A. If you remove a video output for a channel, any request for the corresponding VITC output is also removed.

Choosing Timecode Codecs

> *NOTE: Use of the Advanced panel as described in the following step is necessary only if you want to specify the exact codec resource to be used. By default the system chooses a codec resource for you based on availability. This default option is indicated by displaying "Any" for your codec selection.*

To select a timecode codec:

1. With a timecode Track selected in the configuration tree, click the Advanced button. The Timecode Codec check boxes appear (see Figure 163).

2. Choose one of the eight timecode codecs or None.
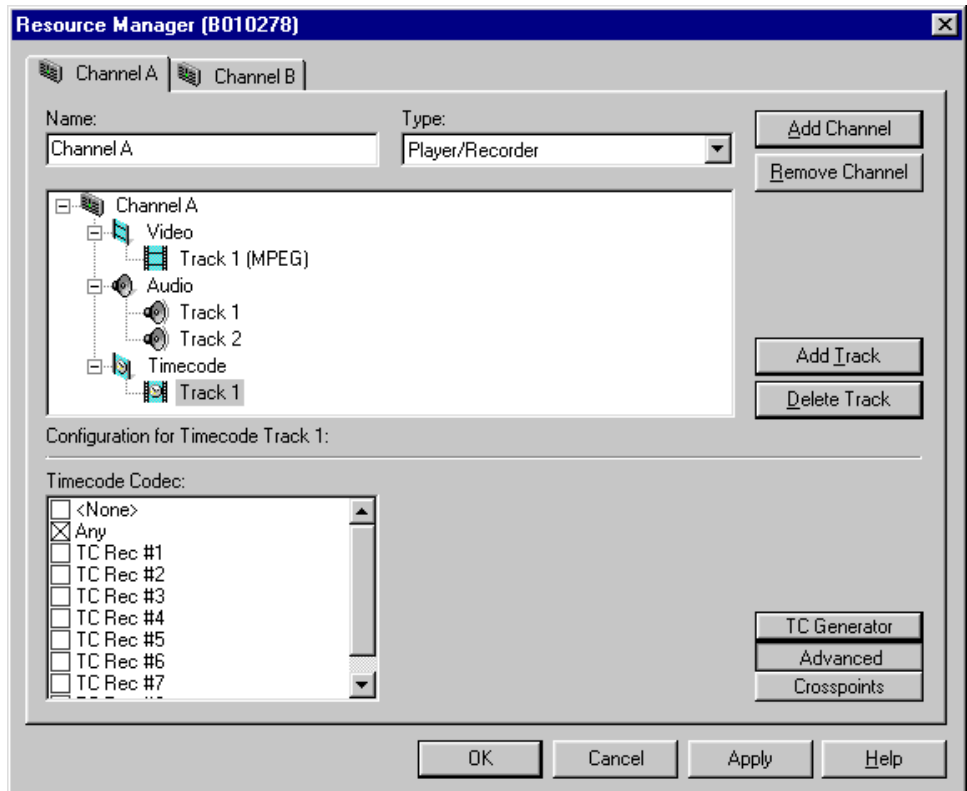
Figure 163. Timecode Codec check boxes

Timecode Generator Settings

If you have selected "Internal Generator" as your timecode input, there are several other settings that you can make to the timecode generator. The controls for making these settings are available only when the timecode input is "Internal Generator," and are dimmed for any other timecode input.

To change timecode generator settings:

1. With a timecode Track selected in the configuration tree, click the **TC Generator** button. The timecode generator panel appears (see Figure 164). The controls are dimmed except when "Internal Generator" is the timecode input.
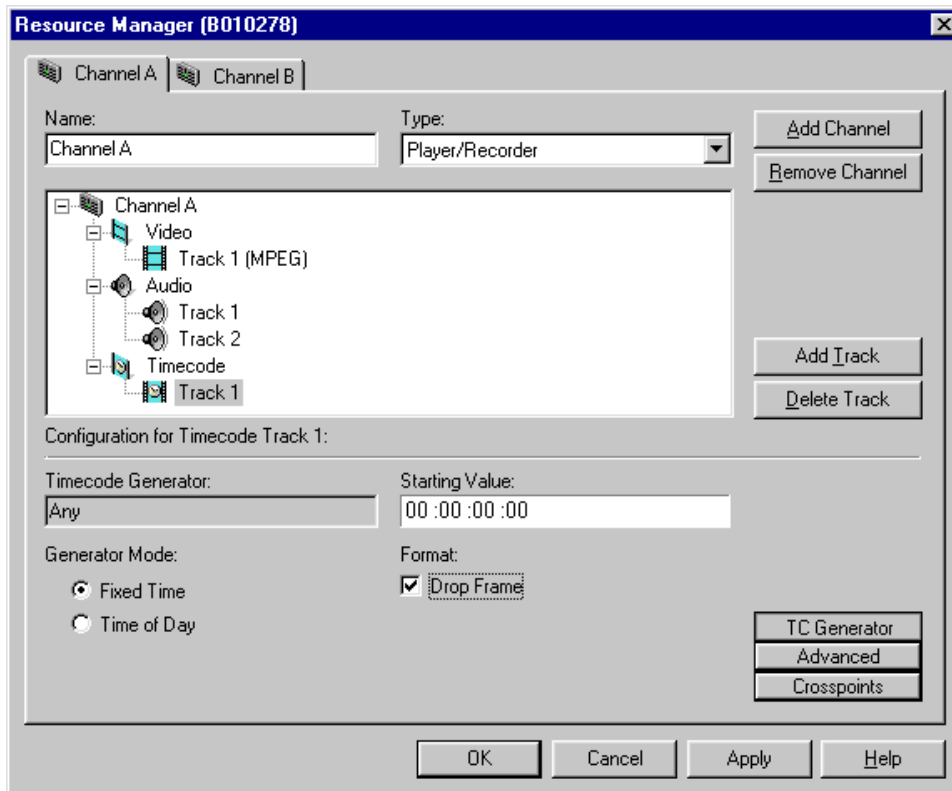
Figure 164. Timecode generator controls

2. Choose a generator mode. You can start timecode using a fixed time or the time of day. Click **Time of Day** to use the Windows NT clock, or click **Fixed Time** to set a timecode value under Starting Value.

3. If you selected fixed time, you can use the default of **00:00:00:00** (Hours:Minutes:Seconds:Frames) under Starting Value or set a new fixed starting time. This setting takes effect the next time you click the **Record** button.

   NOTE: The Drop Frame control is hidden if your Profile system is configured for PAL video. Refer to "Video Input" on page 52 for information about configuring the Profile system for PAL video.

4. To choose drop frame, click on the **Drop Frame** check box. To compensate for the 29.97 frame rate in NTSC, drop-frame timecode synchronizes the rate with elapsed time. Drop-frame timecode drops two frames per minute, except on the tenth minute. PAL, on the other hand, has a constant rate of 25 frames per second and never requires drop-frame timecode.

Resolving Resource Conflicts

Resource conflicts occur when you attempt to allocate a resource that is already in use, either by the application you are working with, or by another application. To resolve a conflict, you must either request a resource that is available, or free the resource that you want from its other use. Resource Manager uses color coding to indicate the status of a resource. If a resource such as a video output is in use, its listing is dimmed, "grayed out." If you request a resource that is in use, its listing turns red, indicating a conflict.

Resource Manager also uses Tool Tips to provide additional information about resources that are in use. When you hold the cursor for a short period of time over a resource that is in use (gray) or in conflict (red), a Tool Tip appears with status information about that resource. Tool Tips do not appear for resources that are available.

When the resource is being used by another of the applications that use Resource Manager, the Tool Tip supplies the name of the application using the resource and the Profile unit (or PC) on which that application is running (see Figure 165).
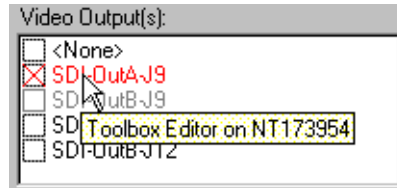
Figure 165. Tool Tip showing an external user

When the resource is being used by the application in which you are currently working, the Tool Tip simply lists the channel that is using the resource as shown in Figure 166.

Figure 166. Tool Tip showing an internal user

When the resource is being used by an application that does not use Resource Manager, such as VDR Panel, the message in the Tool Tip says only "In use" as shown in Figure 167.

Figure 167. "In use" Tool Tip message

Should the application that is using a resource shut down abnormally and release that resource while you have Resource Manager open, the listing for that resource remains gray indicating that it is "in use." The Tool Tip displays "<Error>" as shown in Figure 168 after several seconds of delay. The delay is the result of Resource Manager timing out after looking for status information that is no longer available. If this message appears for a resource, close and re-open Resource Manager. The error indication will disappear, and Resource Manager should correctly indicate the status of all resources.
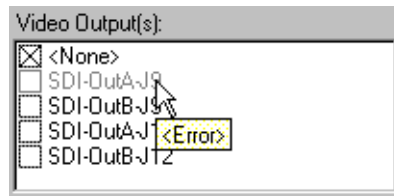
Figure 168. "<Error>" Tool Tip message

Chapter **11**

Using TimeDelay

TimeDelay is a Profile application that enables you to record incoming video, audio, or both, and to delay the playback for a specific period of time. While TimeDelay can be used in combination with other applications like Media Manager, Tool Box Editor, VDR Panel, and others, it is primarily intended for users who will dedicate all of a Profile system's resources to one or more instances of the TimeDelay application.

This chapter provides information about TimeDelay version 2.0, which is supported by Profile system software version 2.5 and higher.

In this chapter you find three major sections:

• Getting Started with TimeDelay — describes how to launch TimeDelay, describes the TimeDelay project file, and describes how to use Resource Manager to configure TimeDelay channels.

• Starting the TimeDelay Process — explains how to start the TimeDelay process either manually or automatically, and provides instructions for and details about the various settings you need to make.

• Using the Interface — this is a reference section that describes each of the controls in the Record and Playback panels and each of the menu items in the File, View, and Config menus.

Getting Started with TimeDelay

Here are two different methods that you can use to launch TimeDelay:

- Double click on the TimeDelay shortcut icon on the desktop. When the TimeDelay window appears, you can use the default settings that include one record and one playback panel (see Figure 169).

- Double click on a TimeDelay project file (.tdx). This launches TimeDelay using the configuration saved in the file.

  NOTE: TimeDelay uses the standard Windows NT interface. For help with Windows NT interaction, refer to Microsoft NT manuals.

To exit TimeDelay:

- Choose **File | Quit**.
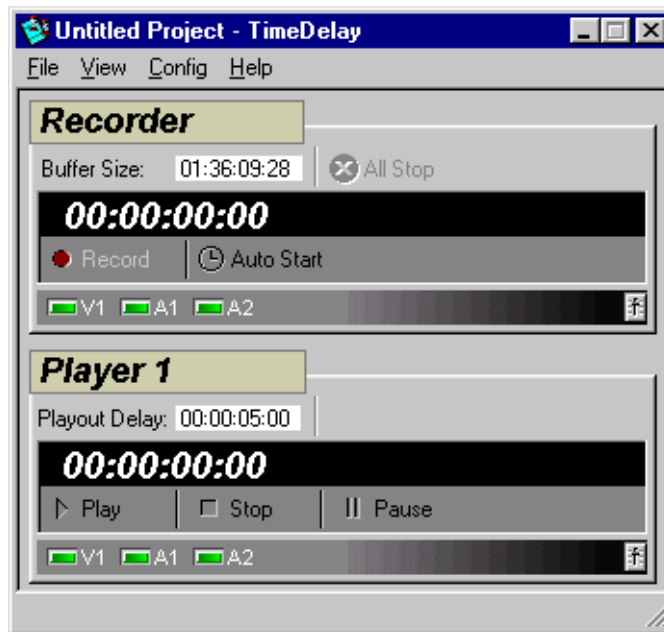
Figure 169. TimeDelay window

Working With the TimeDelay Project

A TimeDelay project includes the resource configuration for record and playback channels as well as application specific information like single or two column view, current timecode source, and information used for crash recovery. This project information is stored in a file that uses a ".tdx" file name extension.

When you start TimeDelay, a default TimeDelay project is created. Although it contains a record and playback channel, the default project is not usable until you assign video and audio inputs and outputs with Resource Manager.

Once you save a TimeDelay project, you can use the project file to start the TimeDelay application. Launching a project file directly starts TimeDelay with the saved project settings.

Saving a TimeDelay Project

To save a TimeDelay project:

1. Choose **File | Save** or **File | Save As…**

   This opens a standard WindowsNT Save dialog. TimeDelay projects use the '.tdx' file name extension.

2. Chose a file name and file location for the TimeDelay project. This can be anywhere on the WindowsNT network.

3. Click the **Save** button.

Opening an Existing Project

To open an existing TimeDelay project, do one of the following:

- Double-click a TimeDelay project file in the WindowsNT desktop.

- With TimeDelay running, select **File | Open…**

This opens a standard WindowsNT "Open" dialog, which allows you to select an existing TimeDelay project file.

Launching a Project at Start-up

To automatically launch a TimeDelay project at start-up:

1. Configure and save a TimeDelay project.

2. Add the name of the TimeDelay project file to the end of the *pdrstart.bat* file.

Pdrstart.bat is a start-up script that is installed with the Profile software. By adding the project name to the start-up file you ensure that TimeDelay will not attempt to run until all Profile services have been initialized at start-up.

Copying Project Files Between Machines

Once you create a TimeDelay project file, you can copy it to any number of machines (or open it remotely). There are several issues to consider:

- When you copy a project to and run it on a PC (rather than a Profile unit), the project still references the original machine name. No matter which PC launches the project, TimeDelay connects to the same machine. A better alternative is to use **File | Import** to import another project's configuration information, then save the project again to create a project file that has a different machine name.

- When you copy a project to and run it on a Profile unit, the machine name stored in the project does not matter (TimeDelay always connects to the local machine). What should be considered is different machine capabilities.

Connecting to a Remote Profile Unit

You can run TimeDelay on any PC that uses Windows NT 4.0 and connects to a remote Profile unit over an Ethernet local area network (LAN). When TimeDelay starts on the PC or when you choose **File | Remote Connection…**, the Remote Connection dialog box shown in Figure 170 appears.

NOTE: TimeDelay remote connection is allowed only when TimeDelay is running on a PC. Consequently, the "TimeDelay Remote Connection" dialog box does not appear when TimeDelay is launched on a Profile unit, and the **File | Remote Connection…** *menu item is not available when TimeDelay is running on a Profile unit.*

To connect to a remote Profile unit:

1. Select one of the names in the Network Host List.

2. Click on **Connect**, or double-click on the name in the Network Host List.

The Connection Status dialog box appears while TimeDelay establishes a connection with the selected Profile unit. If the connection cannot be established, an error message is displayed.

• Press **Cancel** to return to the Remote Connection dialog box.
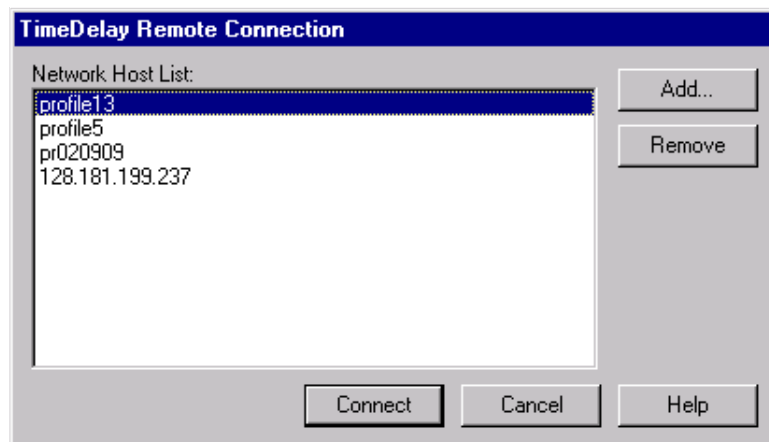
Figure 170. The Remote Connection dialog box

Changing the Remote Connection

To connect to a different machine:

1. Choose **File | Remote Connection…** to open the Remote Connection dialog box.

2. Select one of the names in the Network Host List.

3. Click on **Connect**, or double-click on the name in the Network Host List.

Changing the machine connection closes the current TimeDelay project. If you haven't saved changes to the project, you are prompted to save before TimeDelay makes the new connection. When the new connection is established, the default project settings are used.

Adding Names to the Network Host List

To add a machine to the Network Host List:

1. Click the **Add…** button to open the "Add Network Host" dialog box.
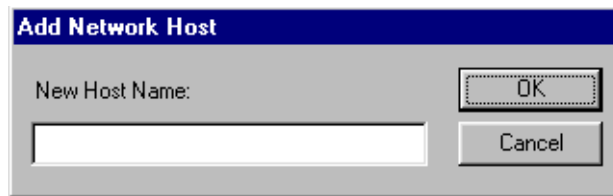
Figure 171. The Add Network Host dialog box

2. Enter the new machine name. This can either be the host name, or the machine's IP address (Ex. 128.181.199.237).

3. Click **OK** to close the Add Network Host dialog box and add the new host name to the Network Host List.

4. Click **OK** in the Remote Connection dialog box to close it and to open the connection status dialog box, which shows the progress of any new connections.

Removing Names from the Network Host List

To remove a machine from the Network Host List:

1. In the Network Host List, click the name you wish to remove.

2. Click the **Remove** button.

Avoiding a Connection Change

When you save a project file, it includes the name of the machine to which TimeDelay is connected. When you launch the project file at a later time, TimeDelay attempts to connect to the same machine. By importing a project file rather than opening it, you can use the resource configuration from the project without its connection information.

To import a project file and avoid changing the connection:

1. Choose **File | Import…** to open the Import Project dialog box, a standard WindowsNT Open dialog box.

2. Select a project file.

3. Click the **Open** button.

Unlike the *Open* operation, importing a project file does not change the current machine connection.

Configuring Channels with Resource Manager

The Resource Manager is used for creating and configuring all TimeDelay channels. In TimeDelay, the first channel (labeled "Recorder" in Figure 172) is always the record channel, and all other channels are playback channels. You cannot remove the first two channels because TimeDelay always requires a record channel and at least one playback channel. You can have as many as 6 playback channels.

For more detailed information about using Resource Manager, refer to "Using the Resource Manager" on page 313.

Adding a Playback Channel

To add a playback channel:

1. Choose **Config | Resource Manager…** to open Resource Manager.

2. Click the **Add Channel** button. This creates a new channel tab in the Resource Manager dialog box.

3. Configure the new channel as necessary. Instructions for using Resource Manager are in "Using the Resource Manager" on page 313.

4. Click the **OK** button.

When you close the Resource Manager dialog box, a new playback panel is displayed in the TimeDelay window.

Deleting a Playback Channel

To remove a playback channel:

1. Choose **Config | Resource Manager…** to open Resource Manager.

2. Click on the channel tab that you want to remove.

3. Click the **Remove Channel** button to delete the selected channel tab.

4. Click the **OK** button.

When you close the Resource Manager dialog box, the panel that corresponded to the removed channel is no longer displayed in the TimeDelay window.

Because TimeDelay always needs a record channel and at least one playback channel, Resource Manager will not let you delete the record channel or the last playback channel.
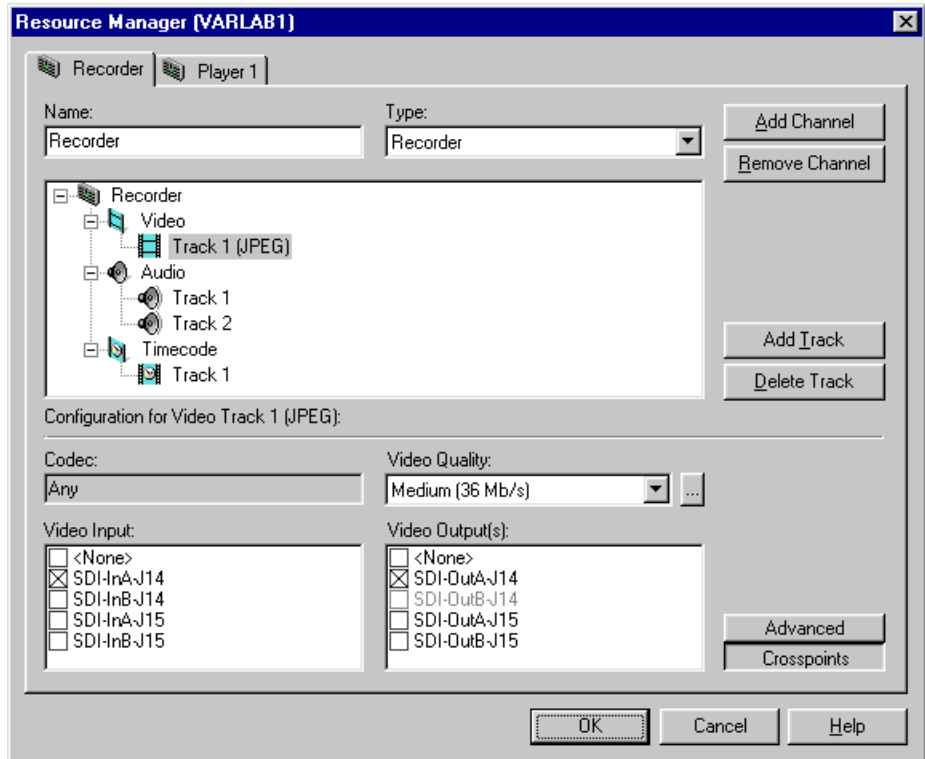
Figure 172. The Resource Manager dialog box

Changing a Panel's Name

To change a panel's name,

1. Select **Config | Resource Manager** from the TimeDelay menu.

2. Select the tab name that needs to be changed.

3. In the Name edit box, type a the new name. Names may be up to 32 characters long and may consist of any alphanumeric characters. Channel names should be, but are not required to be unique.

4. Click the OK button.

When you close the Resource Manager dialog box, the panel corresponding to the renamed channel displays the new name in the TimeDelay window. This name is saved with other resource information in the TimeDelay project file.

Modifying a Channel's Configuration

While the details of resource configuration are generally covered in "Using the Resource Manager" on page 313, TimeDelay imposes some unique restrictions when using Resource Manager to configure channels. These unique restrictions are described here.

• Since playback channels share source material with the record channel, they must have similar configurations. They should have the same number of video, audio, and timecode tracks, and must have the same video compression format. You cannot mix MPEG and JPEG resources in the same TimeDelay project.

• Record and playback channels should always have at least one timecode track.

• The record channel should always use a valid timecode input. This input may come from an external VITC or LTC source, or may simply be a Profile timecode generator. Timecode display and the Auto Start feature are affected if the connected VITC or LTC source does not provide valid timecode.

• When configuring playback channels (which only play material), you do not need to select input resources for video, audio, and timecode tracks.

Handling Resource Allocation Errors

Resource conflicts can occur when another application is running on the same Profile unit as TimeDelay. TimeDelay channels might conflict with each other if the same output is used on more than one channel. When there is a resource conflict and all TimeDelay resources cannot be allocated, the warning dialog box shown in Figure 173 will appear.
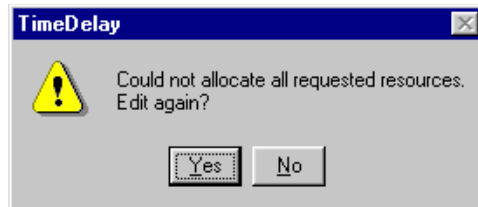
Figure 173. Warning dialog box

Click the **Yes** button to return to the Resource Manager dialog and resolve conflicts. If you click **No** and do not resolve the resource conflicts, TimeDelay cannot function correctly.

Starting the TimeDelay Process

The basic time delay process involves recording program material and playing it back after a specified time has elapsed. You accomplish this using the Record and Playback panels in the TimeDelay window. In each of the procedures that follow, it is assumed that you have already connected (if necessary) to a Profile unit if you are operating remotely, and that you have allocated the necessary resources with Resource Manager.

Manually Starting the TimeDelay Process

To start a recording with delayed playback:

1. In the Buffer Size edit box, enter a record buffer size or accept the default. See "Setting the Record Buffer Size" on page 352.

2. In the Playout Delay edit box, enter a playout delay. Repeat this action for each Playback Panel. See "Setting a Playout Delay" on page 354.

3. On the Record Panel, click the Record button.

To stop the TimeDelay process click the **All Stop** button on the Record Panel.

Automatically Starting the TimeDelay Process

When you select an external VITC or LTC signal as TimeDelay's timecode source, you can start the TimeDelay process automatically when a specific timecode value is reached. This feature allows you to synchronize multiple Profiles that are using the same external timecode source.

To automatically begin recording at a set timecode:

1. Choose **Config | Timecode Source…**

2. Select an external timecode source.

3. In the Record Panel, click the **Auto Start** button, or choose **Config | AutoStart**. The Auto Start… dialog box appears (see Figure 174).

4. Click the Auto Start check-box.

5. Enter the desired start time in the **Start Time** field. This time should be at least 10 seconds ahead of the current time.

6. Click the **Close** button.

When you activate auto start, a countdown is shown on the record panel. When the countdown gets to 00:00:00:00, recording begins.
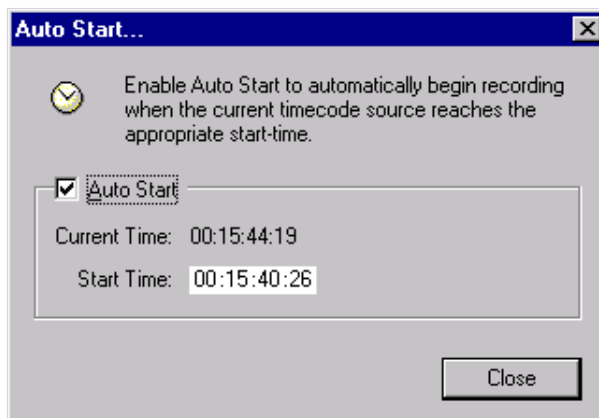
Figure 174. The Auto Start dialog box

Working with the Record Buffer

The record buffer is a quantity of storage space allocated for recording. The size of the buffer determines how much video can be stored before recording returns to the beginning of the buffer, and limits the length of delay that you can set. You can select a different drive to be the record buffer's location. and you can save the contents of the buffer as a clip.

Setting the Record Buffer Size

To set the record buffer size, enter the buffer duration in the Record Panel's Buffer Size edit box.

The record buffer must be at least 5 seconds longer than your longest playout delay. The minimum buffer size is 10 seconds; the maximum buffer size is the recording capacity of the current record buffer volume. By default, the maximum buffer size is shown when TimeDelay is started.

If you enter a buffer size that is greater than the amount of available storage, TimeDelay automatically reduces the value to reflect the largest possible duration. If you enter a buffer size that is smaller than the longest playout delay, TimeDelay automatically increases the value to reflect the smallest buffer size that can encompass the longest playout delay.

Changing the Record Buffer's Location

By default, the TimeDelay Record buffer is created on the first internal disk volume. To change the record buffer's location to a different drive:

1. Choose **File | Set Buffer Drive…** to open the dialog box shown here:
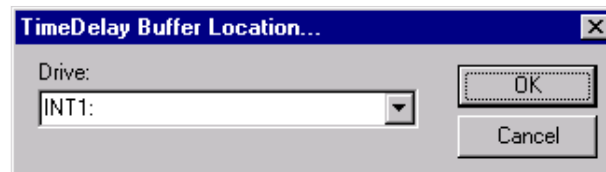
Figure 175. TimeDelay Buffer Location dialog box

2. Select the appropriate drive.

3. Click the **OK** button.

Saving the Record Buffer' Contents as a Profile Movie

Each time the TimeDelay process is started, the disk storage used by the record buffer is deleted. The Save Buffer operation allows you to save the contents of the record buffer before closing or restarting the TimeDelay process.

To save the record buffer contents as a Profile movie, do the following:

1. On the **File** menu, click **Save Buffer As…** This opens the dialog shown below:
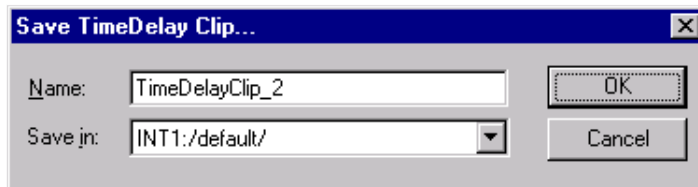
2. Enter a name for the movie.

   This movie name must be unique. When the dialog is opened, a unique default name is suggested. If you change the name and it is not unique, you will be prompted to enter a new name or cancel the save operation.

3. Use the **Save in:** combo box to choose a bin for the movie.

4. Click the **OK** button.

Saving a large record buffer as a movie will reduce the amount of available disk storage. This may effect the TimeDelay application's ability to function.

Working with the Playback Panel

The Playback Panel allows you to control the playout delay for the playback channel that it represents.

Setting a Playout Delay

To set a playout delay, enter the delay duration in the Playback Panel's Playout Delay edit box.

The minimum playout delay is five seconds; the maximum delay is five seconds less than the current record buffer size. TimeDelay automatically adjusts playout delays that are too large or too small to the closest valid value.

Starting a Playback Channel Immediately

To immediately start a playback channel:

1. Start the TimeDelay process.

2. In the appropriate playback panel, click the **Play** button.

Starting playback with the **Play** button overrides the delay time. Once the channel begins playing, the delay time is automatically adjusted to reflect the difference between the record and play positions.

Modifying a Playout Delay

To modify a playout delay after the TimeDelay process has started:

1. In the Playback Panel, click the **Stop** button. The playback channel stops and shows black.

2. In the Playout Delay edit box, enter the new delay value.

3. Click the **Play** button The playback channel restarts immediately with the new delay.

Pausing Playback

To pause playback, click the **Pause** button in the Playback Panel for the channel that you wish to pause. The playback channel's output pauses.

As the time difference between the record position and the paused playback position increases, the playout delay value also increases until it exceeds the maximum playout delay, automatically stopping the channel.

To resume playback after a pause, click either the **Pause** button or the **Play** button in the paused Playback Panel.

Working with Timecode

When TimeDelay channels are configured, one our more timecode tracks can be connected to timecode sources including external VITC and LTC signals, or an internal timecode generator.

As with all TimeDelay channel resources, the number of timecode tracks in each playback channel should match the number of timecode tracks in the record channel.

Since TimeDelay panels have a single timecode display, they can only display timecode from a single source at a time. The Select Timecode Source… dialog box shown in Figure 176 allows you to select from multiple timecode sources.
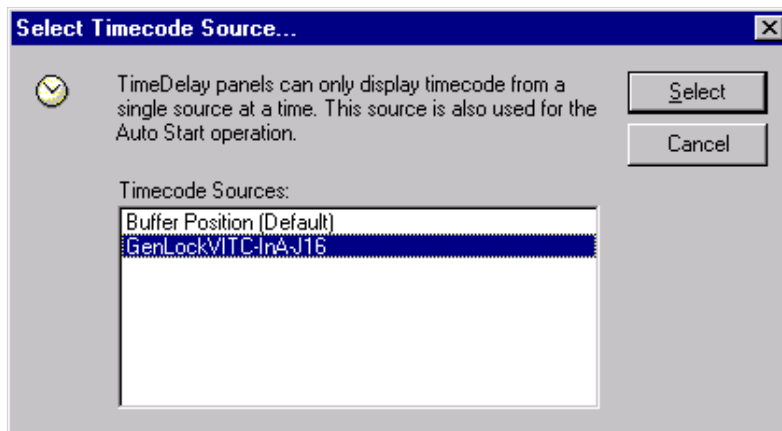
Figure 176. The Select Timecode Source… dialog box

To select a timecode source:

1. Choose **Config | Timecode Source…** to open the Select Timecode Source… dialog box.

2. Select the name of the appropriate timecode source from the Timecode Sources list, which is drawn from the record channel's timecode sources. The Buffer Position item allows you to show the record/play position relative to the beginning of the record buffer.

3. Click the **Select** button.

Crash Recovery

The Crash Recovery option adds recovery features that will restore TimeDelay to the state in which it ended. When you activate Crash Recovery, Time Delay periodically saves the project file. This allows you to add the project file to the *pdrstart.bat* file and fully recover from a crash when the Profile unit restarts. If TimeDelay is closed or crashes while recording, it will come up recording when started again; TimeDelay starts recording at the first break in the timecode and resets the playbacks to their original settings.

Choose **Config | Crash Recovery** to activate the crash recovery functionality. A check mark next to the menu item indicates that crash recovery is activated. If you have not saved the project file prior to activating Crash Recovery, the Save As dialog box appears, prompting you to save the project file.

To ensure that TimeDelay restarts in case of a crash, add the project file name to the *pdrstart.bat* file as described in "Launching a Project at Start-up" on page 342.

Setting Audio Levels

The audio meters in the Record Panel include sliders that allow you to control the audio level as you record. Click and drag the audio level controls to the desired record level for each audio track. Similar controls in the Player panel allow you to control the playback level of the audio.
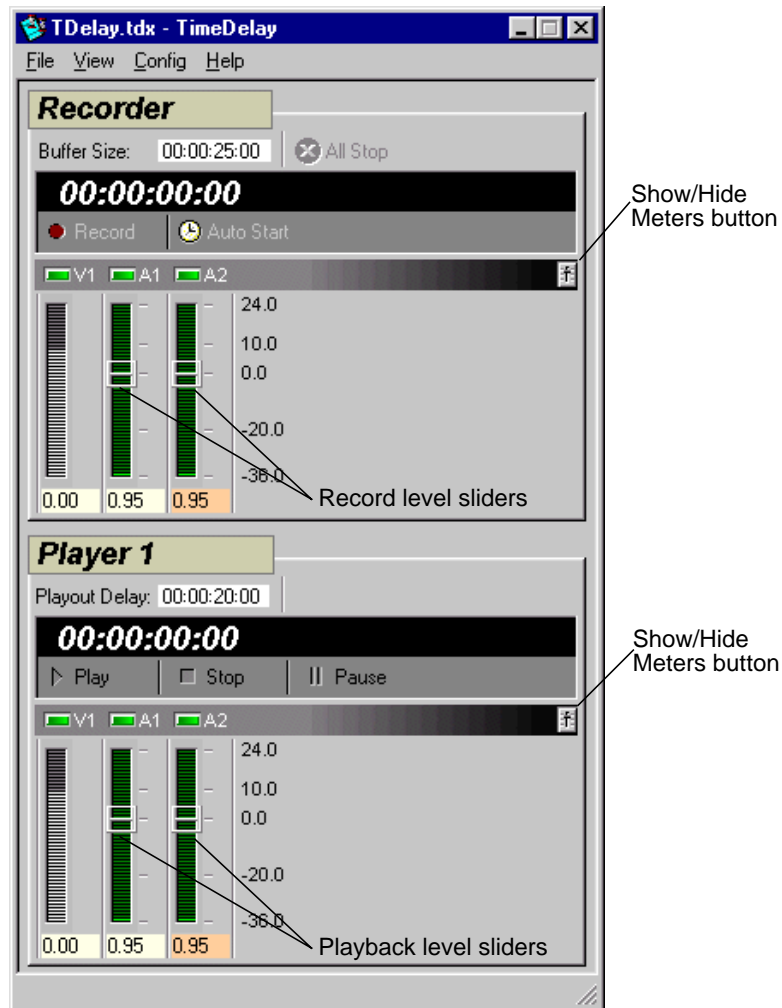
Figure 177. The audio level controls

Using the Interface

This is a reference section that contains descriptions of the operating controls and menus found in the TimeDelay window. It is divided into three sections: the Record Panel, the Playback panel, and the Menus

The Record Panel

The following is an overview of the record panel controls:

Panel Name
: Displays the record channel name. The default record channel name is "Recorder." You can change the channel name using the Resource Manager, but in Resource Manager the first tab is always the record channel. The record panel might shorten long channel names to fit in the display.

Buffer Size
: This edit box displays in timecode format the duration of the record buffer (the length of material recorded before the buffer fills and starts recording at the beginning of the buffer). This control allows you to set the duration of the TimeDelay buffer. The minimum buffer size is 10 seconds. The maximum buffer size is the recording capacity of the current record buffer volume. By default, the maximum buffer size is shown when TimeDelay is started.

Timecode Display
: Displays the current timecode source value. Timecode sources include external VITC and LTC signals, internal timecode generators, the VITC in the house reference, or simply the offset in the record buffer. The timecode source is chosen in Resource Manager.

Record Button
: Starts the TimeDelay process. When you click this button the record panel starts recording and the playback panels start their delays.

Auto Start Button
: Opens the Auto Start dialog box. Auto start allows you to trigger the TimeDelay process using the current timecode source. This button is enabled only when the current timecode source is a VITC or LTC signal.

Countdown Display	Shows the amount of time before the record panel automatically starts. The Countdown Display appears only when the Auto Start mode is active.
All Stop Button	Stops the TimeDelay process. If the playback has not started yet, the delayed start is canceled.
Video/Audio Status Lights	The number of status lights indicates the number of video and audio tracks in the record channel. A Video status light turns red when the corresponding video track is not receiving a signal. An audio status light turns red when the audio input signal peaks and is clipped.
Show/Hide Meters Button	Expands the panel to show video and audio meters.
Video/Audio Meters	The video meter shows the record channel's data rate relative to the maximum rate. Audio meters show the audio input level in dB.

The Playback Panel

Though TimeDelay may have multiple playback panels, each has its own set of the following controls:

Panel Name	Displays the playback channel name. Default playback channel names are "Player 1", "Player 2", etc. You may change the channel name using the Resource Manager. The playback panel may shorten long channel names so they fit in the display.
Playout Delay	This edit box shows the amount of time the playback panel waits before playing. The minimum playout delay is 5 seconds. The maximum delay is 5 seconds less than the current record buffer size. The default playout delay is 5 seconds.
Timecode Display	Shows the current timecode source value (relative to the position of the playback channel). Timecode sources include external VITC and LTC signals, internal timecode generators, the VITC in the house reference, or simply the offset in the record buffer.

Play Button	Starts the playback channel immediately, overriding the current playout delay and updating the playout delay control.
Stop Button	Stops the playback channel; when playback stops, the output channel shows black. Press the stop button to modify the playout delay after the TimeDelay process has started.
Pause Button	Pauses the playback output. The playout delay increases as long as the playback channel is paused. Press pause again or press play to resume playback.
Video/Audio Status Lights	The number of status lights indicates the number of video and audio tracks in the record channel. A Video status light turns red when the corresponding video track is not receiving a signal. An audio status lights turn red when the audio input signal peaks and has to be clipped.
Show/Hide Meters Button	Expands the panel to show video and audio meters.
Video/Audio Meters	The video meter shows the record channel's data rate relative to the maximum rate. Audio meters show the audio input level in dB.

Menus

TimeDelay menus include the following:

File

Remote Connection…   Connect to a remote Profile unit.

Import	Imports the resource settings from an existing TimeDelay project, but keeps the current machine connection.
Open…	Opens an existing TimeDelay project file previously saved by TimeDelay with a .tdx file extension.

File View Config Hel
Remote Connect...
Import
Open...
Save
Save As...
Set Drive...
Save Buffer As...
Exit

<u>S</u>ave	Saves the TimeDelay project file. All TimeDelay project files receive a .tdx file extension. If the project file has not been saved before, Save works like Save As…
Save <u>A</u>s…	Saves the currently open TimeDelay project file with a new file name.
Set <u>D</u>rive…	Selects a different disk volume for the record buffer.
Save <u>B</u>uffer As…	Save the record buffer as a PDR movie.
E<u>x</u>it	Closes TimeDelay.

<u>V</u>iew

Single Column	Displays all the playback panels below the record panel in a single column. When the column becomes too large for the screen, scroll bars appear to allow access to hidden panels.
Two Columns	Displays the record and play panels in two columns as shown in Figure 178.
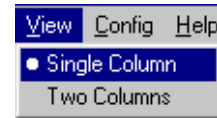
Figure 178. Two-column display

Config

Resource Manager…   Opens the Resource Manager dialog box for allocation of video, audio, and timecode resources, and for adding, naming, and removing channels.
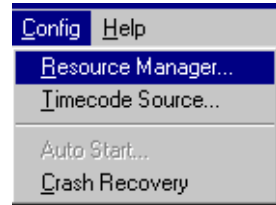
Timecode Source…   Opens the timecode display selection dialog box. If the record channel has more than one timecode track, this allows you to select the one for display in the record and playback panels.

Auto Start…   Opens the auto-start setup dialog box.

Crash Recovery…Turns on "auto-restore mode."

Chapter 11   Using TimeDelay

Glossary

Access Time

The time it takes to find and retrieve digital information, generally from hard disk storage.

AES/EBU

Acronym for Audio Engineering Society/European Broadcasting Union, an industry standard for the transmission of serial digital audio information. The standard specifies the physical attributes of the link, as well as how the information is transmitted along it.

A to D

Analog-to-digital converter. An electronic component that converts incoming analog signals into its digital representation.

Analog video

Video represented as a continuously variable electrical signal. Consumer TV and domestic VCRs are analog video devices. Analog video can be converted to digital format to be stored and manipulated by computer or other digital devices.

Archive library

The archive library is an automated tape storage device used to supplement a machine's disk storage. The library consists of digital tape cartridges and, in some cases, robot that moves cartridges to and from tape transports.

ASPB

Audio signal processing board. An audio board on the PDR 200 that provides 16 channels of analog, embedded digital, and AES/EBU digital audio. You can install up to two ASPBs in a PDR 200 for 32 channels of audio.

Assemble record mode

Video and all audio tracks assigned to a machine are recorded simultaneously, along with timecode, and any previous contents are overwritten. Traditionally this mode is used when appending to a master tape that has not had black, timecode, and control track previously recorded before editing.

Audio I/O

The audio path through the Profile video disk recorder, especially the crosspoint circuitry that routes the audio within the Profile system.

Auto Start

A feature that lets you enter a timecode and have the record buffer start recording at that timecode.

Bit rate

The rate at which video streams in megabits per second (Mb/sec). The bit rate is a reflection of quality—the higher the bit rate, the higher the quality of video. However, video data stored at a high bit rate consumes more disk storage space than data stored at a lower rate. Bit rates can be as low as 6 Mb/sec and as high as 54 Mb/sec. The default video quality bit rate is 24 Mb/sec, which is broadcast quality.

BNC

Connector used in professional A/V components. The BNC connection provides optimum shielding between the video input signal lines to provide the best possible performance. BNC was recently adopted as an alternate AES signal connector.

B Picture

A B picture is a bidirectionally predictive picture used in MPEG video compression. MPEG uses motion prediction to increase efficiency, that is, it reduces data by not duplicating pixels that do not change from frame to frame. A B picture relies on data from both forward and backward motion vectors to determine how a future frame will be composed. *See* GOP, I-frame, P Picture.

Button (on the display)

A small display box that has a raised appearance and contains text. Generally, clicking on a button activates a function or performs some action. *See* Clicking.

Button (on the mouse)

The two or three buttons on the top of the mouse.

Capture

Generally, the act of storing digital audio and video in memory or on a disk. The process may involve converting an analog signal to a digital one. Some compression of the digital data may be involved.

Cartridge tape

A tape used in the library that stores video and audio in digital form.

CD-ROM

Compact Disc-Read-Only Memory, the preferred medium for multimedia storage because of its large capacity, high quality, ease of use, and low cost.

Channel

A collection of video, audio, and timecode resources used for either playing or recording.

Chroma

A term that describes the saturation or vividness of a color. A chroma of 0 describes a neutral, gray color. Chroma ranges to the most vivid color a screen or printer generates for a specific hue and value. *See* Hue.

Cleaning cartridge

A special tape cartridge that cleans tape transports on demand.

Clicking

Quickly pressing and releasing the left mouse button (usually) without moving the pointer.

Clip

A clip is a reference to recorded video or audio tracks from a single source, and may include timecode. If a clip includes both video and audio, they must be synchronous. A reference to several clips edited together is called a master. Deleting a clip will delete its associated material only if that material is not used by another clip or master.

Clip position

Clip position refers to the current location in a clip, denoted by timecode.

CODEC

CODEC is an acronym for Coder/Decoder, the link between JPEG component parallel digital video and the SCSI-2 channel. The CODEC compresses the video data to a rate that is commensurate with the available disk bandwidth. Conversely, the CODEC decompresses the video data coming from the SCSI-2 channel back to 8-bit component parallel digital video.

The Profile video disk recorder translates digital video data between CCIR 601 digital component and compressed motion JPEG for storage on hard disk.

Command line

The line that you type to invoke a program or initiate an action. A command line usually contains the application program name, along with optional arguments known as command-line options.

Composite video

A single video signal composed of combined luminance and chrominance information.

Component video

Typically the transmission or storage of video as a separate luminance and chrominance information, such as Y, B–Y, R–Y.

Compression, video

A technique for reducing the amount of space needed to store images or sequences of images. JPEG, Motion-JPEG (M-JPEG) and MPEG are examples of video compression techniques.

Data cartridge

A digital tape cartridge that is capable of storing media in large quantities.

dB

Decibel. In theory, the minimum change in sound intensity that the human ear can distinguish; also, a relative unit used to compare the strength of acoustic signals.

Default

A value that is automatically assigned or used in the absence of any other input. For example, a new Profile system shipped from the factory is zero-timed by default while E to E mode is the nondefault setting.

Dialog box

A box displayed in a computer application's graphical user interface where you choose options and enter information. Use the mouse or keyboard to move from field to field, click on buttons and position the text insertion point. Enter information with the keyboard.

Digital

In digital audio/video systems, sounds and images are converted into a series of binary values (ones and zeros).

D to A

Digital-to-analog converter. A device used to convert digital signals into an analog form. For example, compact disc players use D to A convertors to convert the digital information on the CD into analog audio suitable for amplification.

Disk expansion unit

A product (PDX 103 and PDX 208) that adds disk storage to a Profile video disk recorder.

Disk Utility

The Profile Disk Utility tool is used to maintain Profile hard drives. This includes formatting and labeling disk volumes, eliminating bad blocks, and updating hard drives with new microcode.

Display

A device that receives video output from a display adapter such as VGA card and displays the video output on a screen.

Dragging

Pressing and holding down the left mouse button while moving the pointer. The mouse pointer must be over an object such as a file.

Drop-frame

In NTSC, you don't actually get 30 frames per second; the real number is about 29.97 fps. Timecode usually assumes 30 fps. To account for the discrepancy, drop-frame timecode skips or drops two timecode values at the beginning of every minute except every tenth minute. This allows timecode to exactly match a real-time clock on 525/60 systems. This correction is not needed on 625/50 systems because the frame rate is exactly 50 fps.

E to E (EE)

Electronics to Electronics mode routes audio and video input directly to output.

Edit

The process of creating or refining a sequence of media (clips) in a specific order.

EDL

An Edit Decision List is a list of events that include the source to be recorded, and where to record it. In addition, an EDL can include information about transitions (cuts, dissolves, wipes), transition durations, effects, etc.

Factory default

The value assigned to a parameter as delivered from the factory. *See* Default.

Field

A part of the total number of lines that represent a video image, scanned in two passes. For example, an NTSC 525-line frame is divided into 262.5-line fields. *See* Frame.

Firmware

Software instructions that are permanently stored in the memory of a computer and are not lost when you turn the power off.

fps

The abbreviation for frames per second, the standard way of measuring the speed of video playback. Thirty fps is considered real-time playback in NTSC, 25 fps in PAL. 24 fps is standard for film and is considered animation

speed playback. In the range of 12 to 15 fps, the human eye can detect the difference between one frame and the next; visually this appears as a jerky motion, or flicker.

Frame

The standard unit of measure for film and video. One frame represents one complete still image, divided into two fields.

Frequency response

The frequency range which an electronic component can accurately reproduce. Humans (some) can hear from 20 Hz to 20,000 Hz (20 KHz). An ideal audio component would have a frequency response, totally flat and without any deviation, from 20 Hz to 20 KHz. Frequency response specifications are measured in decibels (dB), based on how closely an output's response resembles that of the input.

Genlock

This term defines the relationship between video paths. Two video signals that are exactly synchronized are said to be genlocked.

GUI

A Graphical User Interface (GUI) provides a visual way to interact with computer software. GUIs allow people to control an application by using a pointing device such as a mouse to perform operations. The usual alternative to a GUI is a command-line interface, which requires people to type in application-specific commands following precise rules of syntax. GUIs are considered easier to use than command-line interfaces.

Group

In audio terms, this provides the ability to group tracks to perform functions across several tracks at the same time, such as gain, mute, etc.

GOP

A Group of Pictures (GOP) is part of the video compression scheme used by MPEG. MPEG uses motion prediction to increase efficiency, that is, it reduces data by not duplicating pixels that do not change from frame to frame. It does so by relying on a GOP. A GOP is composed of I-frames, B pictures, and P pictures. *See* B Picture, I-frame, P Picture.

Hard disk

Computer systems use hard disks as permanent storage devices. Information is magnetically recorded on spinning platters for quick access.

Hardware

The physical parts of a system, such as a computer, display monitor, or keyboard.

Help

Profile software applications come with on-line help manuals that include examples, demonstrations, and reference information about using the application. The manual, and the Help window it is displayed in, follow the Microsoft standard.

Hertz (Hz)

Hertz is the unit of frequency named after the physicist Heinrich Hertz (1857–1894). One hertz (Hz) is equal to 1 cycle/second.

Hue

A term that describes a color family (for example, red or yellow). Hue is a polar coordinate—that is, it moves in a circular motion around the color spectrum—and ranges from 0 to 360, with 0 being red. Hue is measured in degrees. *See* Chroma.

I-frame

MPEG uses motion prediction to increase efficiency, that is, it reduces data by not duplicating pixels that do not change from frame to frame. It does so by relying on a GOP. A GOP is composed of I-frames, B pictures, and P pictures. An I-frame (or I picture) is analogous to a JPEG frame in that it is a self-contained picture. It does not use motion vectors as do the B picture and P picture. *See* B Picture, P Picture.

Input device

A device that allows you to send information to a software application. Typical input devices include keyboards, mice, tablets, and trackballs. *See* Pointer and Pointing Device.

Insert record mode

In insert record mode, audio and video material can be recorded independently. New material can replace existing material anywhere in the program. Insert record mode requires timecode on the destination.

Interface

A common connection that is used for sending or accepting information and control between programs and machines.

Keyboard

An alphanumeric input device that allows communication with software applications.

Library system

The Profile Library System (PLS 200) is a robotic tape library that provides affordable mass storage for the Profile video disk recorder.

LTC

Longitudinal Time Code is typically an analog audio track or a dedicated address channel on a tape. LTC can't be read in still mode, and may not be reliable during low-speed shuttle operations.

Media files

Audio, video, and timecode sources that have been captured by the Profile disk recorder are considered media. Media is stored on disk as media files. Audio and video clips do not contain media, but instead reference positions in a media file.

Memory

A component of a computer system used for virtually instantaneous temporary storage and retrieval of information (data) or instructions (programs). Information in memory is volatile, and is lost when the computer is shut down. Storing information on a permanent storage device such as a hard disk or a tape allows for retrieval during another work session.

Menu

A list of commands or functions that you select with a pointer. A menu is normally displayed in a small window.

Monitor

Two-channel audio output of selected machine tracks. Generally, audio systems or video displays used in a studio environment to control quality. Also, a video display device, without audio capabilities.

Mouse

An input device that, when moved across a flat surface, causes the pointer to move across a screen. The mouse usually has buttons that you press to send signals. These signals, in turn, accomplish certain functions. The representation of the mouse on the screen is called the pointer. *See* Pointer.

MPEG

MPEG (Moving Picture Experts Group) is a set of standards used for compressing digital video and audio. MPEG uses compression methods that maintain high quality while requiring smaller bandwidths to transport video and audio streams.

NTSC

The standard composite color format used in North America and Japan that was developed by the National Television Standards Committee.

Off-line cartridge

The archive library has immediate access of up to 80 cartridges. However the library database can contain information about any number of cartridges. A cartridge is considered off-line when it has been ejected from the library storage device, but remains in the library database.

PAL

The Phase Alternate Line standard is used to encode color information in Western European composite video.

Panel (TimeDelay)

The graphical representation of a channel. The record panel shows controls for the record channel. A player panel shows controls for a play channel.

Partitions

To give the archive tape transports some degree of random access, a data cartridge is divided into an number of partitions. Media may be added to a partition until that partition is full. Deleting media from one partition does not affect any other partition.

Parameter

A variable that is given a specific value. This value is passed to a program before execution.

Pixel

The smallest part of a display memory that can be addressed.

Playback

Playback is the act of playing a clip, track or master loaded on a machine at any rate.

Playback delay

The amount of time that the playback channel is behind the record channel.

Pointer

The pointer allows you to make selections in menus, to size and position windows and icons, and to select the window where you want to send the input. The window manager, such as Windows NT, determines the shape of the pointer. *See* Pointing Device.

Pointing device

Typically a mouse, tablet, or some other device with effective dimensional motion. *See* Pointer.

Port

A physical connection (such as a multi-pin connector or coaxial connector) and its associated firmware, that permits one computing device to communicate data and control information with another computing or peripheral device.

P Picture

A P picture is a predictive picture used in MPEG video compression. MPEG uses motion prediction to increase efficiency, that is, it reduces data by not duplicating pixels that do not change from frame to frame. A P picture relies on data from forward-moving motion vectors to determine how a future frame will be composed. *See* B Picture, GOP, I-frame.

Protocol

A set of rules that allows computers to transfer information across a network to other computers.

Read-only memory (ROM)

Memory that is not erased when power is turned off. It is also called firmware. The firmware in a computing device allows it to boot without being connected to a host computer.

Real-time

Generally considered to be 30 fps in NTSC, 25 fps in PAL, 24 fps for film. In computer terms, processing information as it becomes available, rather than storing for processing at a later time.

Record Buffer

Determines the length of the Time Delay clip that the record buffer loop records on.

Resource

A resource is a Profile input, JPEG codec, or output. You allocate resources for exclusive use by any application, such as Tool Box Editor, List Manager, and VDRPanel. You should free up (deallocate) unneeded Profile resources whenever possible to that they can be used by other applications.

RGB

An additive method of combining percentages of red, green, and blue primary colors to form other colors.

ROM

See Read-Only Memory.

RS-232-C

A standard serial communications interface for data communications, commonly used for communications between a computer and modem, or to control automated devices which don't have a conventional computer operating system.

RS-422

A standard serial communications interface for data communications, similar to RS-232-C, but good for longer distance cabling. It is typically used for communications in a broadcast or post-production environment between devices such as VTRs, mixers, and controllers.

SCSI Channel (Small Computer System Interface)

The interface between the Profile processor and the disk array or library system. It is fast and wide and provides for speeds up to 20 Mbytes/second on a 16-bit bus.

SDI

An acronym for Serial Digital Interface, a standard for transmitting CCIR 601 digital video over a pair of conductors (coaxial cable).

SECAM

France and Russia use the *Séquence Couleur À Mémoire* standard color format.

Serial port

Usually, the standard RS-232-C of a personal computer. Attach a serial cable to communicate with a peripheral device such as a modem or printer.

S/N Ratio

The Signal-to-Noise Ratio, measured in decibels, is the ratio between the maximum signal level and the noise level with no signal present. The higher the value, the better the sound reproduction.

Source

In Profile operations, a source is any signal (video, audio, or timecode) presented to the machine inputs. A VTR output, a satellite downlink, a camera output, and a facility router output are all examples of sources.

Status bar

The status bar at the bottom of most windows provides status information, short explanations of commands and errors.

Tape

See Cartridge Tape.

Text insertion point

The I-shaped pointer which appears in a text input area. Clicking the mouse in a text input area causes the text cursor to appear in that area. Whatever information you type on the keyboard appears in the text input area displaying the text cursor.

Timecode Source

LTC, VITC, Timecode generator

TimeDelay

The name of the application and the amount of time that elapses between the start of the record channel and the start of the playback channel.

Tool Tips

A tool tip is a small pop-up window that displays a single line of text describing the purpose of a control in a window. A tool tip is hidden most of the time, appearing only when the user puts the cursor on a tool and leaves it there for approximately one-half second. The tool tip appears near the cursor and disappears when the user clicks a mouse button or moves the pointer off of the tool.

Tracks

Clips and masters are made up of individual tracks. A clip may consist of any combination of a video track, timecode track, and up to 16 audio tracks. A master may consist of any combination of a timecode track, 0-4 video tracks, and 0-16 audio tracks.

Trimming

Shortening an originally recorded media file to a desired duration using the In and Out marks. Material beyond the In and Out points is removed from the volume unless it is used in another clip or master.

Video interface

The link to or from the internal video router and the external video signal. An example is a composite analog input channel. This path takes a composite analog video signal and converts it to 8-bit component parallel digital and places it on the video router. Another example is the component serial digital output. This path takes component parallel digital video from the video router and converts to serial digital component format.

Video disk recorder/ server

A device such as the PDR 200 Video File Server that stores audio and video as digital information on disks.

VITC

Vertical Interval Time Code is encoded into the video lines at the start of field. VITC can be read during still frames, but becomes unreliable at frame rates faster than normal play speed, such as fast shuttle operations.

Video router

The video path through a system. The crosspoint circuitry that routes the video within the Profile video disk recorder is a router.

Volume

A volume is a logical set of disks, such as the disks in a PDR 100 or a PDR 200, which are used as a grouping of disks for the storage of audio and video information. Volumes may also consist of a PDX 103 or PDX 208 Disk Expansion unit, or a PRS 200 or PRS 250 Profile RAID System.

Glossary

Index

Numerics

A

B

R

Index