

# Guide to the VDOLive Tools

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Manual Version 2.1

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## About this Chapter

Begin with this chapter to gain a general understanding of VDOLive technology and products.

Information in this chapter is organized by topic, as follows:

- **Introduction to Desktop Video Broadcasting:** presents an overview of how VDOnet's VDOLive technology and products enable you to communicate in a new medium called Desktop Video Broadcasting.
- **What's Special About VDOnet's VDOLive Technology:** describes the technological advantages of VDOLive technology and the complete process you follow to use VDOLive products.
- **VDOLive Family of Products:** explains when to use each of the VDOLive products and what to use it for.
- **About This Manual:** defines the visual cues used to help you quickly locate information in this manual.
- **Support for VDOLive Customers:** lists the various types of support available.



## Introduction to Desktop Video Broadcasting

Now that you have the VDOLive Tools you can broadcast your video content to the world of Internet users. Using this software you can bring life to your personal or corporate web pages by adding clips with video and sound.

But enhancement of web pages, whether for advertising, educational or other purposes, is only one of the numerous applications of VDOLive. By bringing together Internet and video communications, VDOLive is creating a new communications medium: desktop video broadcasting.

Desktop video broadcasting means richer, more interesting communications for individual as well as corporate users. Motion video can be made easily available to friends, colleagues and customers who view the video using their regular Internet connection. VDOLive offers you motion to replace static information and real-time streaming video from a VDOLive Server instead of lengthy download times.

Beyond the limitations of current technology lies a world in which community meetings, interaction between citizens and government, between educational institutions and students, and numerous other such forms of interaction will become possible using video communications over the Internet. VDOnet has taken a giant step towards making this happen by offering products that work at both high and low bandwidths and on multiple platforms. Continuing development by VDOnet in these areas will soon bring additional products to your desktop.

Watch the VDOnet web site (<http://www.vdo.net>) for announcements of future technology breakthroughs and new products from VDOnet!

## What's Special About VDOLive Technology

VDOLive technology enables you to incorporate video and audio in Internet web sites and efficiently delivers video over a variable bandwidth computer network, such as the Internet, using:

- **Efficient** and **scalable compression** algorithms.
- A TCP/IP based **scalable transmission protocol**.

VDOLive also offers direct delivery of video from the web site to the user's screen, without downloading! This means:

- less waiting
- no risk of contamination by viruses

VDOLive is a software-only solution and requires no additional hardware.

### *How Does it Work?*

You can reach a wide audience with your video content by using VDOLive products as follows:

- Capture and compress your video and audio using the *VDOLive Tools*.
- Store the compressed AVI clips on the *VDOLive Server* computer.
- Create a text file that points from your Web (HTTP) Server to the VDOLive Server. See separate document: [Making your VDOLive Content available on the WWW](#) for guidelines.
- Create an HTML link from your web page to the VDO file. See also: [Making your VDOLive Content available on the WWW](#).

When your viewers access your web site, they see full-color motion video by clicking on the links you have provided. There are no lengthy waits for downloading.

- Viewers use the *VDOLive Video Player* to request and play your video files.

Your VDOLive Server sends compressed data over a TCP/IP connection and the VDOLive Video Player decodes and displays the video. The TCP/IP network is usually the Internet, but could also be a LAN, intranet or any other TCP/IP network.

### ***Scalability***

We define “scalability” as the dynamic adjustments made by the VDOLive Server in order to deliver the highest quality video under changing conditions, i.e. variable bandwidth.

Each time a VDOLive Video Player, also called a “client”, connects to a VDOLive Server to request video, the Server determines the bandwidth available in that particular connection. For as long as the client remains connected the VDOLive Server performs “dynamic scaling”.

Scalability is built into the compressed file. The scalability of the compressed data combined with the VDOLive Server’s dynamic scaling, provides the best possible video quality at any particular moment.

### ***Compression Efficiency***

**Compression** of video and audio data is necessary in order to minimize the bandwidth required to efficiently transmit this data. The better the compression, the faster the data can travel over narrower lines.

The VDOLive compression algorithms are highly efficient. They enable the transmission of higher quality video than other compression schemes at any

given bandwidth: even as low as 14.4 kilobits per second (kbps)! VDOLive compression works together with the VDOLive Server's scalability to adjust the rate of transmission to the bandwidth available on the receiving end, while preserving the best possible balance of motion and resolution for the connection.

## VDOLive Family of Products

The VDOLive product line includes the following software:

- VDOLive Video Server
- VDOLive Broadcast Server
- VDOLive Capture Station
- VDOLive Tools
- VDOLive Video Player

The VDOLive Tools are available as part of a VDOLive Video Server package and are also available separately. To purchase additional copies of the VDOLive Tools, contact VDOLive Corp. Sales by telephone, at (415) 846-7730 or via the VDOnet web site: <http://www.vdo.net>.

### ***About the VDOLive Video Server***

Use the *VDOLive Video Server* to:

- Store files of compressed video and audio data.
- Serve video to users upon request by a VDOLive Video Player (also called a "client").

### ***About the VDOLive Tools***

Use the *VDOLive Tools* to prepare video files.

The VDOLive Tools include two separate programs: VDO Capture and VDO Clip.

- Use *VDO Capture* to convert video from an analog source, such as video cassettes, to digital format.
- Use *VDO Clip* to compress digital (i.e. previously captured) video.

### ***About the VDOLive Video Player***

The *VDOLive Video Player* is the VDOLive client software. Your audience requires this Player to view VDOLive video. Download the Player, for free, from VDOnet's web site at <http://www.vdo.net>.

Although the Player is not covered in this manual, you can learn more about it by consulting the Frequently Asked Questions (FAQ) file on the VDOnet web site: <http://www.vdo.net>.

## About This Manual

This manual uses typographical conventions and other visual cues, in addition to chapter divisions, to help you find the information you want.

### *Visual Cues*

Type Used	For...
<i>Italics</i>	<i>NAMES of: windows, files, buttons, options or paths.</i>
<b>Bold</b>	<b>Emphasis within text, such as terms used for the first time.</b>
Shaded Text	Tips
Monotype	Examples of initialization files, source code, etc.
<b>Bold Monotype</b>	<b>User Input</b>
SMALL CAPS	NAMES OF KEYBOARD BUTTONS/FUNCTIONS

## **Chapter Summaries**

The information in this manual is divided into six chapters:

- **Welcome to VDOLive:** begin by reading this chapter to get a general understanding of what VDOLive technology is all about, what the various products are and how they work together. If you are already familiar with VDOLive, and are looking for how-to information about the Tools, proceed to the following chapters.
- **Trial Version Tools:** this chapter defines the functioning of the free version of the VDOLive Tools.
- **Introduction to the VDOLive Tools:** defines technical requirements and provides installation instructions.
- **VDO Capture:** defines features and explains how to use the capture tool. A detailed table of contents for this section is found on page 23.
- **VDO Clip:** defines features and explains how to use the compression tool. A detailed table of contents for this section is found on page 42.
- **Appendices:** look here for troubleshooting information and tips.

## Support for VDOLive Customers

### *Tips in this Manual*

Look for text printed on a shaded background. Any useful tips on using VDOLive products, or related advice, are identified this way throughout the manual.

### *Support on the World Wide Web*

The VDOnet web site (<http://www.vdo.net>) includes a Technical Support section with how-to information, tips on using VDOLive products and a Technical Notes section. Access the Technical Support area of the VDOnet web site from the home page.

Check the VDOnet web site often for current information and news!

### *Online Help*

Both VDO Capture and VDO Clip include online help files you can turn to while using these programs. They include definitions and explanations of the functions available in each tool.

Access the online help from the main menu bar of the program.



# Trial Version Tools

If you downloaded the VDOLive Tools for trial purposes from the VDOnet web site, you have a **Trial Version**.

The Trial Version Tools are capable of:

## **Compressing :**

- up to 1 minute of video and/or audio data.
- at a maximum video encoding rate of 128 kbps.
- in any of the 4 VDOLive compression modes; Lite VDO encoding is not supported.
- only from VDO Clip, not from any other application.

## **Additional Limitations:**

- the Trial Version Tools expire on April 30, 1997.
- VDO Clip:
  - File|Driver Options leads directly to Compression Configuration window.
  - SaveAs can save only as original format.
  - Only way to compress is in VDOLive format, using VDOEncode command.

# Introduction to VDOLive Tools

The VDOLive Tools include a capture tool, called *VDO Capture*, and a compression tool, called *VDO Clip*.

The following chapters document the features and uses of these tools, including the following topics:

- **Introduction to VDOLive Tools:** introduces you to the VDOLive Tools and their functionality.
- **Technical Requirements:** lists software and hardware requirements for using the VDOLive Tools.
- **Installing VDOLive Tools:** covers operating instructions for setting up the VDOLive Tools on your computer.
- **VDO Capture:** provides instructions for using VDO Capture and guides you through functions, features and operations.

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A Table of Contents for this section appears on page 23.

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- **VDO Clip:** provides instructions for using VDO Clip and guides you through functions, features and operations; includes explanations of editing and compression features in VDO Clip.

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A Table of Contents for this section appears on page 42.

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## Technical Requirements

### *Minimum System Requirements*

Following is the minimum system configuration required for both the Capture and the Compression Tool. Additional information about capture hardware is listed on page 24.

- **Processor:** 486
- **Operating System:** Windows 95 operating system  
–or–  
Windows NT 3.51 or 4.0, Server or Workstation
- **RAM:** 16 MB
- **Available Disk Space:** 1.2 MB to complete the installation. (additional disk space required for storing captured and/or compressed files)

### *Additional hardware required for capture:*

- Source of video/audio for capture, such as:
  - Camera, or
  - VCR / VTR with video/audio out.

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The quality of the source video is an important factor in the quality of the compressed video. We recommend using Beta SP format.

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- Video Capture Card compatible with your operating system. See page 24 for additional details.
- Sound Card with supporting drivers.

## Installing VDOLive Tools

### *Uninstalling previous versions*

Remove any installation of the VDOLive **Personal** Tools 1.0 or earlier before installing this version of the Tools. Running the VDOLive **Personal** Tools 1.0 or earlier after the full version of the VDOLive Tools have been installed **results in the codec drivers being uninstalled**. The VDOLive Tools must to be reinstalled in order for them to function properly.

If you installed the VDOLive **Personal** Tools 1.0 or earlier to the default directory, use **any** uninstall option to remove them before installing this version of the VDOLive Tools.

If you installed the VDOLive **Personal** Tools 1.0 or earlier to any directory other than the default installation directory, use the **custom** uninstall option to remove the Personal Tools before installing this version.

➤ To uninstall the VDOLive Tools:

1. Select Uninstall from the folder or program group of the version of the Tools you are removing.

2. Choose either the *Automatic* or the *Custom* uninstall option.

**Automatic uninstall** removes program and related data files from the hard disk but does not remove general purpose DLL files such as the video and audio codec drivers. These DLLs may be of use with other VDOnet products.

**Custom uninstall** allows you full control over the uninstall process and prompts you to decide which, if any, program components, including DLLs, you remove from your system.

3. Follow on screen instructions until uninstall is complete.

### ***Installing this version of the VDOLive Tools***

- To install the VDOLive Tools:
  1. Uninstall the VDOLive **Personal** Tools 1.0 or earlier.
  2. Run the VDOLive Tools installation executable file by double clicking on it.
  3. Follow the on screen instructions.

### ***Uninstalling***

- To remove the VDOLive Tools from your system:
  1. Select Uninstall from the VDOLive Tools folder or program group. Alternatively, on Windows 95, select Add/Remove Programs from the Control Panel(Start|Settings|ControlPanel) and select VDOLive Tools.
  2. Choose either the *Automatic* or the *Custom* uninstall option.

**Automatic uninstall** removes program and related data files from the hard disk but does not remove general purpose DLL files such as the video and audio codec drivers. These DLLs may be of use with other VDOnet products.

**Custom uninstall** allows you full control over the uninstall process and prompts you to decide which, if any, program components, including DLLs, you remove from your system.
  3. Follow on screen instructions until uninstall is complete.

# VDO Capture

## About the Capture Tool

Use VDO Capture software to **capture** from analog video, such as VHS or Beta SP magnetic tapes, and from analog audio, to digital format. The conversion process requires use of a video capture card together with VDO Capture, and a sound card if audio is to be captured as well. VDO Capture is not an editing tool.

Proper configuration of your capture card and its drivers is necessary in order for VDOLive Tools to work. Refer to your capture card documentation for details.

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If capture functions are not working properly, try capturing using any capture program that may have come with your capture card, and/or with *VidCap*, the Microsoft video capture application for Video for Windows. If the functions do not work in either application, check that your capture hardware and drivers are installed properly.

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## Using the Capture Tool

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## Technical Requirements Specific to VDO Capture

### ***Capture cards that work with VDOLive***

Please refer to the VDOnet web site ([www.vdo.net](http://www.vdo.net)) for a list of capture cards that work with VDOLive.

Your capture card must support the following operations in order to work with VDO Capture:

- Color depth of 16 bits per pixel (RGB 555) or 24 bits per pixel (RGB 888). 8 bit color is supported, but not recommended for use. 32 bit color is not supported.
- To capture motion video, your capture card must be able to support a capture rate of 15 frames per second (fps). To capture video for use in flip mode, a capture rate of 2 fps is sufficient.
- Capture of raw (uncompressed) video
  - or –
- Capture and compression to a Microsoft *Video for Windows*™ compatible format.

Capture cards that compress to MPEG, Motion JPEG or other proprietary compression schemes, are not supported for use with VDO Capture.

➤ To capture data using these cards and other capture software and still compress them using VDOLive compression:

1. Use the Ulead MPEG Converter™ to convert directly from MPEG to VDOLive format.

–or–



2. Save the data as an uncompressed AVI file before opening it in VDO Clip. This usually requires you to use another program that supports the compression format of your file.

### ***Hardware Dependent Functions***

The following functions in the *Options* menu of VDO Capture are available only if supported by your capture hardware.

- **Preview / Overlay:** Your capture hardware may support one or both of these functions. Only one mode can be active at a time.
  - **Preview** video: preview sets the VDO Capture screen area to display images of captured video during the capture process, according the frame rate you set. If, for example, you are capturing at 15 frames per second, in preview mode, 15 frames a second of captured video are displayed on screen. Using Preview gives you a relatively good idea of what the captured video looks like, however, it uses CPU resources.
  - **Overlay** video: this is a hardware-only function which does not require any CPU resources. When you are set to overlay mode, the video you see is being sent directly from the capture hardware to your screen. It does not reflect the quality of the captured video. If your capture hardware supports Overlay, use this option to minimize the load on your processor.
- **Video Format:** defines dimensions of captured video and color depth (in bits per pixel).
- **Video Source:** defines video input channels; type of input signal supplied by video source. Parameters such as hue, brightness and contrast.

- **Video Display:** defines appearance of video on screen during capture. (Does not affect appearance of captured video).

## Before you begin Capturing

### *What you can do to improve Capture Results*

Some of the operations you can perform to improve capture results include:

- Increasing the amount of RAM on your system.
- Upgrade your processor.
- Maximize Windows memory by restarting Windows before running VDO Capture  
–or–  
run VDO Capture before opening or running any other Windows applications.
  - Removing programs from your Windows Startup group also helps.
- Optimize/Defragment your hard disk. This reduces the frequency of dropped frames as well as time needed to open and save files.
- Capture to an internal IDE or SCSI disk. External IDE disks connected to the parallel port are not well suited for video capture.
- Check for drivers from previously installed capture hardware, or external disk drives, no longer in use. Removing these drivers can help improve the smoothness of your captured video.
- Make sure the drivers you are using for your video and sound cards are the most current ones available. Contact the card manufacturer for

additional information; current information and drivers are frequently available on the company's web site.

- Use a utility such as Norton Disk Doctor™ to check your hard disk before beginning capture.

### ***Adjusting the sound input***

Before you capture, necessary to adjust the sound input for optimum recording level. You can do this using Windows 95 tools, or using the *Goldwave* application (page 51).

- To adjust the sound input using Goldwave:
  1. Open a new empty file.
  2. Refer to the *Goldwave* documentation for details on how to monitor the input level and make adjustments in the Windows 95 "Recording Control" window as described in the following procedure.
- To adjust the sound input using Windows 95 tools:
  1. Restart your computer.
  2. Open both the Windows 95 Volume Control (double-click on the loudspeaker icon at the bottom right corner of your desktop) and the Sound Recorder (Start | Programs| Accessories| Multimedia).
  3. Open the Options menu of Volume Control. Select Properties, then and select Recording in the area labeled Adjust volume for.
  4. In the area labeled Show the following volume controls, check all the check boxes if they are not already checked. Click "OK". The window is now labeled Recording Control (instead of Volume Control).
  5. Select the type of audio input you are using. If, for example, you are going to be capturing from a video cassette, select Line-In or

Microphone, according to the location of the connection you are using in the back of the computer.

6. Begin playing the video you plan to capture. It's best to play a particularly loud selection.
7. Watch the audio intensity meter in the Recording Volume column of the Recording Control window.

---

If the audio intensity meter does not display anything, stop the video, press the Sound Recorder record button (the red dot at the far right) and play the video again. The audio should register now.

---

8. The clearest audio will display bright green and yellow bars in the audio intensity meter. Red indicates some distortion. Replay your video and adjust the Volume slider in the appropriate input column of the Recording Control window until there is as little distortion as possible.
9. Close the Sound Recorder (if prompted to save, choose No) and the Recording Control.

## **Setting up Files**

### *Defining Files*

- To create the file to which you store captured data:
  1. Choose *Set Capture File* from the *File* menu  
–or–  
from the *Options* menu, choose *Capture Settings*, and then *Set File* in the *Capture Settings* dialog box.  
A dialog box opens.

2. In the *Set Capture File* dialog box, name the file and define its location. Use the *.avi* extension for the file name.
3. Click *Open*.

If you do not set up a file before capturing, your data will be saved to a file named *capture.avi* under the root directory of your local disk (c:\).

**Capture to your local disk!** Capturing to a network drive may result in a high percentage of dropped frames, especially at higher capture rates.

### *Allocating File Space*

Set aside disk space before beginning capture to achieve a higher number of successfully captured frames than without pre-allocation of disk space.

If your data exceeds the space you allocated, the file will enlarge automatically as necessary, however, the advantage of pre-allocation is lost when this happens. Therefore, you may want to allocate about 20% more space than you expect to need. If this results in your file being larger than necessary, because of space allocated which has no data in it, follow the procedure listed below (page 31) for removing empty space from a file.

#### How to calculate the amount of space to allocate

Calculate the amount of disk space you should allocate as follows:

Total Bytes Required = Bytes required for video + Bytes required for audio, where:

[width of frame (pixels) \* height of frame (pixels) \* bits per pixel] divided by 8 = bytes per frame

# of bytes per frame\* # of frames per second \* length of planned capture (seconds) = Bytes for video

16KB per second of audio = Bytes for audio

### *Sample Calculation*

- Image (Frame) Size: 160x120
- Color Depth: 24 bits per pixel
- Capture Rate: 15 frames per second
- Total capture time: 30 seconds

160 pixels wide x 120 pixels high = 19200 pixels per frame

19200 pixels per frame x 24 bits per pixel=460800 bits per frame

460800 bits per frame divided by 8=57600 bytes per frame

57600 bytes per frame x 15 frames per second = 864000 bytes per second

864000 bytes per second x 30 seconds of video = 25920000 bytes required for video

(25,920,000 bytes = 25,312.5 KB or 24.72MB)

Audio: 16 KB per second x 30 seconds = 480 KB required for audio

Total Disk Space Required: 25,312.5KB (video) + 480KB (audio) = 25,792.5 KB or 25.19 MB.

- To allocate file space:
  1. Choose *Allocate File Space* from the *File* menu. The *Set File Size* dialog box opens.
  2. In the dialog box, enter the number of megabytes of your disk you are setting aside for this file.
  3. Click *OK*.

#### *Removing empty space from a file*

- To remove empty space from a file:
  1. Open the file in VDO Clip.
  2. In *Driver Options*, set the video compression to *Full Frames (Uncompressed)*.
  3. Set *Audio Format* to the same format as in the original file (where “original” refers to the file from which you are removing the space).
  4. Use *Save As* to save the file under a different name.

---

The original file is not overwritten in this process; you are actually creating a new file. Since uncompressed data files are large, discard the original file (the one with the empty space) once you have created the new file to prevent your disk from filling.

---

#### **Checking and Changing Capture Settings**

- To view, define or change capture settings:
  1. Choose *Capture Settings* from the *Options* menu. The Capture Settings dialog box opens:

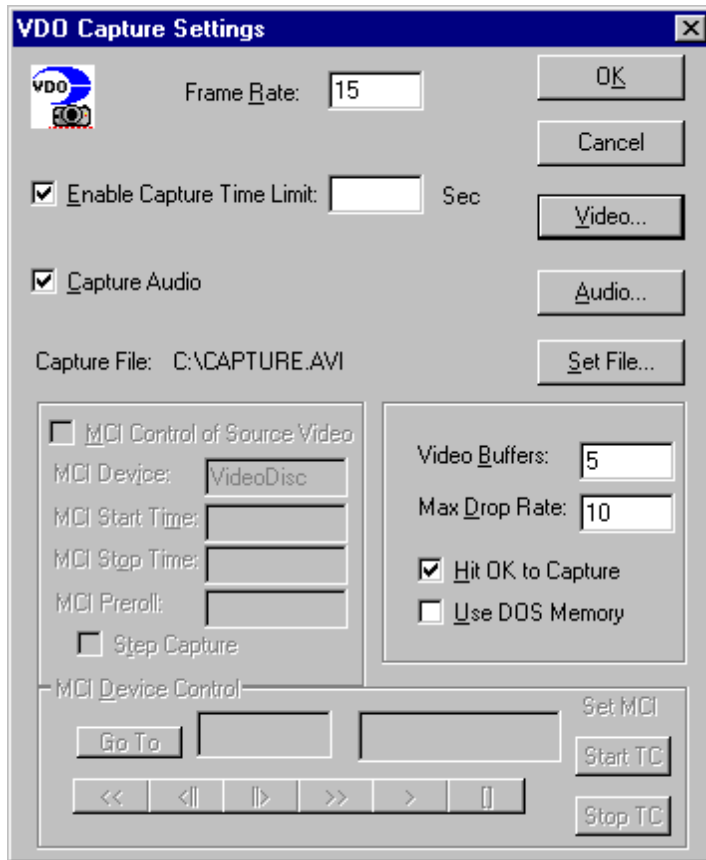


Figure 1 - Capture Settings Dialog Box of VDO Capture



Define or change the settings as necessary, as follows:

<b>To define or change:</b>	<b>Do this...</b>
Capture Frame Rate	Enter a number in the Frame Rate box. This is the number of frames per second (fps) at which video is captured.  Capture at 10-18 fps for best results.
Capture Time Limit	Enter a number in the Enable Capture Time Limit box. Capture is timed in <b>seconds</b> .
Capture Audio	Check this box to capture audio together with video.  Uncheck to capture video only.
File Name for Captured Data	Click on the Set File button.
Video Format	Click on the Video button to open the Set Video Format dialog box.
Audio Format	Click on the Audio button to open the Set Audio Format dialog box.
MCI Control of Source Video	Use MCI Device Settings from the Options menu.

## Supported Video Formats

- To view, define or change video format settings:
  1. Click on the *Video* button in the Capture Settings panel to open this dialog box:

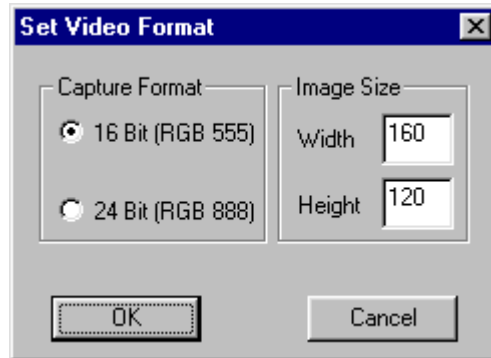


Figure 2 - Capture Settings: Set Video Format

**Supported Capture Formats:** 16 bit and 24 bit color.

- Video in 16 bit color must be in RGB 555 format
- Video in 24 bit color must be RGB 888.

Work with 24 bit color for best results.

**Supported Image Sizes:**

If you plan to compress the captured data using VDO Clip, the minimum image dimensions supported are 64 x 64.

Maximum size supported by VDOLive compression  
pixels (w) \* 288 (h) (CIF)

352

- Maximum size 16 bit VDOLive Video Player can play:  
240 pixels (w) \* 176 (h)
- Maximum size 32 bit VDOLive Video Player can play:  
352 pixels (w) \* 288 (h) (CIF)
- Maximum recommended image size for movie mode:  
240\*176

---

For movie mode clips intended for Internet delivery to users with modem connections (28.8 kbps or less) use 160\*120.

---

- Maximum recommended image size for flip mode:  
352\*288
- Maximum recommended image size for storybook mode:  
352\*288  
However, for such large frames, do not put in more than one frame each 10 seconds. For a faster frame rate, decrease the frame size.

---

If you are not sure what size to use, we recommend 160x120.

---

### ***Supported Audio Formats***

- To view, define or change audio format settings:
  1. Click on the Audio button in the Capture Settings panel to open this dialog box:

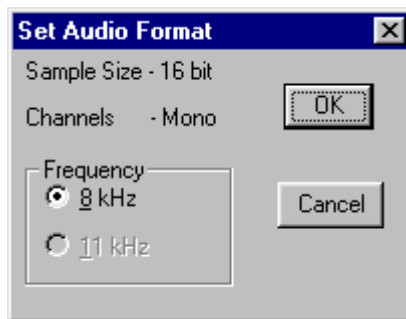


Figure 3 - Capture Settings: Set Audio Format

Supported **Sample Size**: 16 bit

Supported **Channels**: Mono

Supported **Frequency**: 8 kHz

Only these audio settings are supported by VDO Capture and VDO Clip.

---

Any data captured by VDO Capture can be compressed using VDO Clip.

---

If you are using any program other than VDO Capture to capture audio, use one that supports audio capture at 8 kHz. A method of “converting” audio from unsupported formats to the 8 kHz format supported by VDO Clip involves use of additional software, however, it will make this data available for use with VDOLive compression. See the section on “Converting Audio from an Unsupported Format” beginning on page 51.

### ***Using MCI Control of Source Video***

If you are working with professional level video equipment, you may wish to use this convenient and precise method of controlling source video. You

must have a physical connection between your video source hardware and your computer as well as the appropriate MCI device driver installed. MCI related options in VDO Capture is disabled in the menu if you do not have the required configuration.

- To enable MCI control of source video:
  1. Choose MCI Device Settings from the Options menu and enter the necessary settings.
  2. Return to the Options menu of VDO Capture and choose Capture Settings.
  3. Check the MCI Control of Source Video checkbox.

The MCI area is now active. You can define time codes here and use the button bar in this area to control the video source.

## Capturing

### *Starting Capture*

- To begin capturing, follow these steps:
  1. Set up your file as described in Setting up Files, above.
  2. Start playing your source video.

Video should appear in the window of VDO Capture. If no picture appears, check the following:

- Is the VCR or other device on?
- Is it playing?
- Is it connected properly? Check the *Source Connector* setting in *Options|Video Source* option to see that it is defined properly. It

should be set to the type of connector (S-Video or Composite) you are using.

Refer to the Troubleshooting your Equipment section (Appendix A, page 101) for more help.

3. Choose *Capture Video* from the *Capture* menu.

Since it is difficult to hit the exact frame at which you want capture to start and end, we recommend starting capture a bit before where you want your clip to start, and stopping capture a bit after the end. The extra frames can be edited out later.

➤ To remove the extra frames from your captured video:

1. Open the file in VDO Clip.
2. Highlight each frame or range to be deleted.
3. Use Cut or Delete to remove the frames.

See the section beginning on page 48 for an explanation of editing functions available in VDO Clip.

## ***Stopping Capture***

➤ To stop capture:

1. Use the *left mouse* button  
–or–  
use the `ESCAPE` key.

There may also be a stop capture function defined by your capture card software; see your capture card documentation for this information.

---

If you do not stop capture, it can continue until your disk is full.

---

Prevent your disk from filling during capture by setting a time limit. Capture will stop automatically when this limit is reached. Define the capture time limit in the Capture Settings dialog box (Options|Capture Settings).

Various statistics, as determined by your capture card drivers, may be displayed when capture is complete.

### ***Copying to the Clipboard***

- To copy one video frame to the Clipboard:
  1. Position the frame you wish to capture in the VDO Capture window.
  2. Choose *Copy* from the Edit menu. The displayed frame is copied to the Clipboard as a Device Independent Bitmap (DIB).

## **Working with Palettes**

When working with a 256 color display, use a palette in order to see color; otherwise the picture is displayed in gray scale. You can import a palette from an application other than VDO Clip or create one.

### ***Importing a Palette***

- To import a palette:
  1. Place a palette from any application on the Clipboard.
  2. Choose Paste Palette from the Edit menu.

## ***Creating a Palette***

- To create a palette:
  1. Choose Make Palette from the Options menu. The Create New Palette dialog box opens.
  2. Define the number of colors (1-236 or 1-256).
  3. Define the number of frames from which you want the colors to be sampled.

## **Defining Image Size and Quality**

- To define or change the size of the captured video frame and its quality:
  1. Choose Video Format from the Options menu.
  2. Select from the options available in the dialog box.

## **Making Color Adjustments**

- To make adjustments to the color in your captured video:
  1. Choose Video Source from the Options menu
  2. Make any changes in the dialog box that opens.

## **Tuning Video Display**

- To tune the quality of your video display:
  1. Choose Video Display from the Options menu
  2. Make your adjustments in the dialog box that opens.



## Exiting the Capture Tool

- To close the program and exit from VDO Capture
  1. Choose Exit from the File menu.

# VDO Clip

## About the Compression Tool

Use VDO Clip to edit and **compress** previously captured, uncompressed video and audio and encode this data using VDOLive technology. The compressed files, saved in *.avi* format, are ready for transmission by the VDOLive Video Server over any TCP/IP network.

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## Switching to the Capture Tool

At any time, you can open the capture tool without closing the compression tool.

- To open VDO Capture from VDO Clip:
  1. Choose Capture from the File menu.

## Viewing Clips

### *Opening a Clip*

Use the File|Open command to open any multimedia file in VDO Clip, such as files in *.avi* or *.wav* format.

- To open a file:
  1. Select *Open* from the *File* menu. The *Open AVI* dialog box opens.
  2. Browse for the file and click on the Open button. The clip appears in the VDO Clip window:

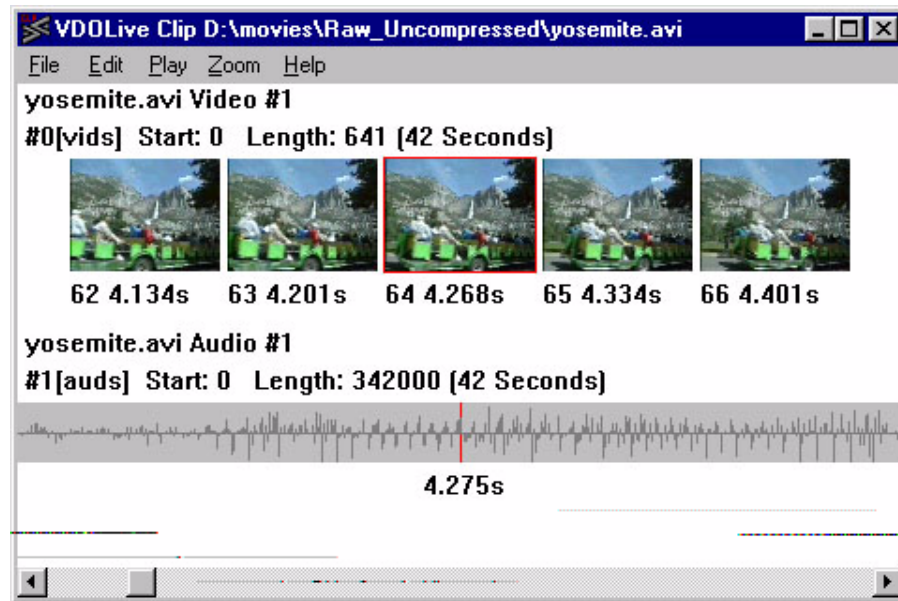


Figure 4 - VDO Clip with open .avi file

The clip is now available for viewing, editing, compressing and saving. Files that are not multimedia, such as bitmaps, cannot be opened in VDO Clip using the File|Open command. This type of data can be pasted in from other applications and will be displayed in the main window of VDO Clip.

### ***Playing a Clip***

You can play files of uncompressed or compressed video.

### *Playing from the Play menu*

- To play a clip:
  1. Open the *.avi* file you want to play.
  2. Select Play from the Play menu.

You can do any of the following once the clip is playing:

<b>To ...</b>	<b>Do this ...</b>
Stop	Use the <i>Stop Play</i> command from the Play menu
Go directly to the beginning of the clip	Press the HOME key
Go directly to the end of the clip	Press the END key
Restart once the clip has reached the end	Press the HOME key
Scroll through a clip	Use the slider at the bottom of the window, or use the keyboard arrow keys to move one frame at a time.

### *Playing from the MCI Player*

- To play a clip from VDO Clip using the MCI Player:
  1. Select Play|MCI Player.
  2. Select Open and enter the name of the file you wish to play.

---

You can play VDOLive compressed video using the MCI Player on any computer where the VDOLive drivers are installed. The drivers are

included in the installation of the VDOLive Tools and can be installed separately, without the capture and compression tools.

## *Zooming*

- To change the size of the picture displayed on your screen:
  1. From the Zoom menu, select the magnification you want:
    - /4 = one-quarter image size
    - /2 = one-half image size
    - x1 = actual captured or compressed image size
    - x2 = twice image size
    - x4 = four times image size

## **Editing Clips**

Ordinarily when you work in movie or flip mode, your source material will be an .avi file containing both an audio and video stream. However, whether to create an audio program or merge an audio stream into a storybook, or to edit any clip, you can merge an audio stream into an open video clip or video data into an audio clip. For instructions, see page 51.

---

Edit only uncompressed data.

---

## ***Editing Video and Audio***

Editing, for the purposes of work using VDO Clip, means manipulating the order of the information in an audio or video stream. The editing functions are listed under the Edit menu of VDO Clip and include Cut, Copy, Paste



and Delete. Use these functions to rearrange the sequence of video frames, to remove portions of the data in a stream or to add data to a stream.

**Select** the data to be edited in order to enable the editing functions; selecting, for the purposes of editing in VDO Clip, means highlighting using a selecting function. Methods of selecting data are explained below.

---

**Edit only uncompressed data.**

---

- To edit video or audio data:
  1. Select (highlight) the video frames or the portion of the audio stream you want to edit (see chart following). You can select video or audio together or separately.
  2. Apply any of the standard editing functions from the Edit menu. These functions (Cut, Copy, Paste and Delete) remain disabled until data has been selected.

The following chart tells you how to select the data you want to edit.

<b>To...</b>	<b>Do This...</b>
Select one video frame	Click on frame.
Select one video frame, with corresponding portion of audio stream	SHIFT+Click on video frame
Select a range of video frames	Click on start frame SHIFT+Click on stop frame.
Select a whole stream (video or audio)	Click at the top border of the stream.
Select a range of video frames, with corresponding portion of audio stream	CTRL+click on start frame in video SHIFT+CTRL+click on stop frame in video

Although it is possible to apply these instructions to the audio stream first, you may find it simpler to work primarily with the video stream. This is because the video stream is divided into clearly identifiable frames, while it is more difficult to identify the exact part of the audio stream you want to select.

## **Merging Audio and Video Files**

### *How to import an audio or video stream*

Use the Merge command to merge an audio stream into a video only clip, or a video stream into an audio clip. Make sure the streams you import are in VDOLive compatible formats.

- To merge video and audio:
  1. Open a multimedia file, with only one stream (video or audio), in VDO Clip.
  2. From the File menu select Merge. The Merge With browse box opens.
  3. Select the file you want to merge into your clip.

The streams are now in the VDO Clip window together.

---

If the audio is in an unsupported format convert the audio stream.

---

### *Converting Audio from an Unsupported Format*

The only audio sampling rate compatible with VDO Clip is 8 kHz. However, if you have audio that was captured at any other sampling rate and you would like to compress it using VDOLive compression, a work-around exists for allowing editing and encoding of non-8kHz audio.

The following procedure uses a conversion tool called *GoldWave*. *GoldWave* converts audio from 11, 22 or 44 kHz to 8kHz and is available for free download via the WWW from the following address (URL): <http://web.cs.mun.ca/~chris3/goldwave/>

- To convert an 11kHz audio stream:
  1. Open *GoldWave* and use File|Open to open the .wav file.
  2. From the Effects menu, select Resample.
  3. Select 8,000.
  4. Click OK.
  5. Use File|SaveAs to save the file under a new name (16-bit, mono, signed).
  6. Merge the 8 kHz audio into your clip for use in VDO Clip.

---

Add +4 to +8db of Gain in *GoldWave*'s "Parametric EQ Filter Effect", at 4000Hz Center and 2000Hz Width (band 7). The EQ should be applied before resampling.

---

## Compressing Clips

### *Understanding VDOLive Compression*

#### *What is compression?*

Compression makes it possible for the large amounts of information in video and audio files to be served over relatively narrow bandwidth lines, such as those making up much of the Internet, to your audience.

VDOLive compression applies VDOnet's VDOWave **codecs** to the video and audio data; the process in which the data has these codecs (coder/decoder) applied to them both compresses the data and encodes it, allowing it to be decoded on the client end by a VDOLive Player.

VDOLive compression uses standard AVI file format as a wrapper for the compressed data.

The complete process of converting source data to VDOLive compressed files is:

- **Capture:** if your content is in analog form, capture it to digital format.
- **Edit:** use any digital editing tool including VDOLive compression codecs, such as Adobe Premiere™ version 4.2. You can also use VDO Clip for editing, however, VDO Clip is primarily a compression program. For sophisticated editing functionality, use an editing tool such as Premiere.
- **Collect information** about your audience: now is the time to find out if any of your users are restricted in the type of content they can receive, either by limitations of bandwidth, or by a network firewall. This knowledge will help you in selecting the appropriate encoding mode.
- **Define compression settings:** the most important settings are the encoding mode and rate; you may also define other settings, such as the interleave or key frame rate, and any settings required by the application you are using.
- **Compress:** this is a completely automatic process once you have defined the compression settings.

Once your content is compressed, it is ready to be made available to your audience:

- **Store and Serve:** VDOLive compressed video files are stored on a VDOLive Server and accessed by users from web pages. For guidelines, refer to the separate document: [Making your VDOLive Content Available on the World Wide Web](#).

- **Additional step** for users of the Lite VDO Plug-in: convert compressed AVI files to AVS format. For more information, refer to pages 55, 71, and 76 of this manual and to the separate document, [Making your VDO Live Content Available on the World Wide Web](#).

## ***Compression Modes***

The first parameter you must set before compressing is the mode. This determines the type of clip you will have after compression, as expressed in the video image quality and the video motion.

### *What is a Compression Mode?*

The compression mode defines the relationship between the video image **quality** and the speed of the **motion** in your compressed video. There are four modes:

- **Movie**: fastest motion of all the modes, high quality images.
- **Flip**: slower motion than movie, but preserves high image quality.
- **Storybook**: no motion; still images change at pre-defined rate.
- **Audio** program: no motion. No video images included.

### *How to determine the right compression mode*

Determine the mode appropriate for your work according to:

- Client firewalls considerations.
- Source data considerations, that is, the **type of content** you are compressing.

## Client firewall considerations

Limitations imposed by your audience may determine the video encoding mode you use. There are two types of compression mode available:

- **VDOLive modes:** to reach viewers not behind a firewall, or behind a firewall that supports VDOLive, use the VDOLive video encoding mode appropriate for your type of source content. Movie, Flip, Storybook and Audio Program are all VDOLive modes.
- **Lite VDO mode:** to reach viewers behind a firewall that does not support VDOLive video, you must use Lite VDO encoding. Video encoded in this mode can reach any user. VDOLive performance is superior to that available using Lite VDO encoding.

If your audience is viewing video from behind a network firewall, find out whether the System Administrator has configured the network firewall to allow VDOLive content:

- If so, use any encoding mode suitable for your content.
- If not, you must use Lite VDO encoding.

---

Encourage your audience to use firewalls that support VDOLive video content.

---

## Source content considerations

- For **video** content: use VDOLive **Movie** or **Flip** mode.
- For **graphic**, non-video content: use VDOLive **Storybook** mode.
- For **audio** content: use VDOLive **Audio Program** mode.

More information about when to use each mode is provided in the section on that mode.

## **Compression Rates**

### *What is a Compression Rate?*

The encoding rate defines the maximum amount of information (video data) included in the compressed file.

- Rate is expressed in kilobits per second (kbps), which refers to the bandwidth necessary to transmit the information.
- Information includes the color depth and speed of motion in each frame of video.

If the user's connection has sufficient bandwidth, s/he will receive all the information included in a file; if not, the VDOLive Server will scale the amount of information sent as the connection allows.

### *Determining the right compression rate*

Here are some factors that you should take into consideration when determining the best video encoding rate for your work:

- **Viewer's actual bandwidth:** Viewers will be able to see video at the rate allowed by their bandwidth of their connection; this will sometimes be lower than the maximum encoding rate you set. If this happens, the VDOLive Video Server will scale (in this case, decrease the amount of information it sends to the user) to the user's available bandwidth. Should more bandwidth become available to the user during the connection, the Server scales (now increases the amount of data being sent to the user) accordingly.
- **Video Image Quality:** At higher encoding rates, more information per frame can be included in the compressed data. Therefore, one way to achieve good results with complex images (such as fast motion) or large



(over 160\*120 pixels) image sizes is to compress at a relatively high encoding rate. Bear in mind, though, that in order to benefit from these high quality video clips, your VDOLive Video Server must be able to serve them at a high bandwidth per client allowance, and your users must have sufficient bandwidth to receive the clips at a relatively high speed.

- **Video Motion Quality:** To achieve smooth motion, a high percentage of frames from the captured (or other source) video must be preserved in compression. Higher encoding rates include a greater number of frames.
- **Encoding & Transfer Time:** The higher the video encoding rate, the longer it takes to compress the data and to transfer it to the VDOLive Video Server (by FTP, for example)
- **Disk Space:** The higher the video encoding rate, the larger the resulting file.
- **Behavior of the VDOLive Video Server:** The VDOLive Video Server gives priority to audio data, then scales video data to the bandwidth available in a particular connection, up to the maximum of the encoding rate at which the file was compressed. The administrator of the VDOLive Video Server can tell you if the Server is configured to serve individual client connections at a rate compatible with your encoding rate. If you compress a movie at 256 kbps, for instance, but your VDOLive Video Server is limited to serving clients at a maximum of 64 kbps per connection, your users will not receive the full benefit of your high compression rate files.

### ***Additional Compression Settings***

Mode and Rate settings are available to users of any version of VDO Clip including the Trial Version; all other settings are only available to users

with the full version of the VDO Live Tools. See the definition of the Trial Version for additional information (page 17).

### *Interleave*

Interleave refers to the frequency at which audio and video are integrated; this should be about once every second.

Interleave is determined by the frame rate of the captured (input to VDO Clip) data, not by the frame rate in the compressed result (output). For video captured at 15 frames per second (fps), therefore, the default interleave setting of every 10 frames is effective both for movies at which the compressed rate may be 15 fps or higher and also for flip mode videos where the compressed rate does not exceed 2 fps.

### *Key Frames*

Key frames are video frames in which captured data is stored without reference to the previous frame. These frames are used to preserve the quality of the picture even when previous frames may have been lost; they also require higher bandwidth for transmission since they contain more data than other video frames.

Recommendation: work with the default setting of 1 key frame per 60 frames.

### *Archiving*

Before compressing clips, consider preparing an archive copy. Archive clips can be used as source material for creating new clips in the future, recompressed at different modes and rates than those you use now. Compress archive clips at a high encoding rate. If you have sufficient

storage resources to save uncompressed data, archiving compressed clips is unnecessary.

### ***Supported Data Formats***

You can use VDO Clip to compress any data that was captured with VDO Capture. Any other captured data can also be used provided it that meets the following requirements:

#### *Image Size*

- **Width** must be a multiple of 16 or compression will not succeed.
- **Height** must be a multiple of 16; if it is not, the frame size is rounded down to the nearest multiple of 16 and truncated at the lower border.
- **Minimum** image size is 64 (w) by 64 (h) pixels.
- **Maximum** image size 352 (w) by 288 (h) pixels.

#### *Color Depth*

- **16 bit** (RGB 555) or **24 bit** (RGB 888) color depths are supported.
- **8 bit** color is supported, but not recommended, for use with this version of VDO Clip.
- **32 bit** color is not supported.

#### *Audio*

Audio format must be **8 kHz, 16 bit, mono or stereo**. Stereo audio can be compressed using VDO Clip, but will be mono in the compressed version.

## *Video*

The video can be uncompressed, or previously compressed.

When recompressing video, consider that the quality of your results can only be as good as the quality of the material you begin with. Both the quality of your source material and the encoding bit rate you choose determine the quality of compressed data.

### Special Prerequisites for Storybooks

All bitmaps must be **uniform** supported size and color depth. If you try to copy a bitmap into VDO Clip and it is a different size or color depth than other bitmaps already in the clip, an error message appears.

### Backward Compatibility

Video and audio data compressed using any previous versions of VDO Clip, including the VDOLive Personal Tools 1.0 or earlier, can be decoded and played using this version of VDO Clip.

## ***Video Modes***

Compression modes for files with video data are:

- Movie mode
- Flip mode
- Lite VDO encoding mode

## *VDOLive Movies*

### What is a VDOLive Movie

VDOLive Movies provide full motion video to users. These movies are created from high quality captured video and audio data, compressed at higher video encoding rates than other VDOLive videos and bring high quality color and motion video to your users.

### When to use Movie Mode

Movie Mode works best when your viewers are Internet users with connections of 28.8 kbps or faster, or when the movies are going to be played over a LAN or Intranet, when each user generally has a relatively high bandwidth connection.

The real speed at which your compressed video is transmitted will be determined by the following factors:

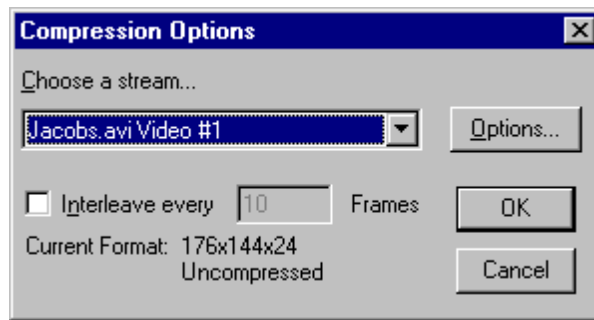
- The user's actual network bandwidth at time of viewing.
- The maximum video encoding rate you set.
- The maximum allowed bandwidth per client connection of your VDOLive Video Server.

### Compressing VDOLive Movies

Before beginning, you must have captured audio and/or video data in .avi file format.

- To compress data in movie mode:
  1. Open an .avi file (File|Open)

2. From the File menu select Driver Options. The Compression Options dialog box opens. From here you will define compression settings for the video data in your clip.



*Figure 5 - VDO Clip Compression Options, video stream selected*

3. In the list box, select the video stream.
4. Check the box next to Interleave. The default setting of every 10 frames usually provides best results, but you can change the Interleave setting here. (More information about Interleave: page 58)
5. Click on Options. The Video Compression dialog box opens:

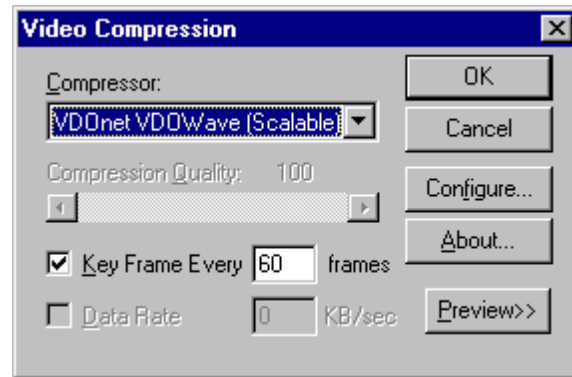


Figure 6 - VDO Clip Video Compression, VDOLive video compressor selected

6. From the list box, select the VDOLive video compressor: VDOnet VDOWave (Scalable).
7. Check the box next to Key Frame Every. The default setting of 60 frames usually provides best results, but you can change the Key Frame setting here. (More information about Key Frames: page 58)

- Click on Configure. The Compression Configuration window opens:

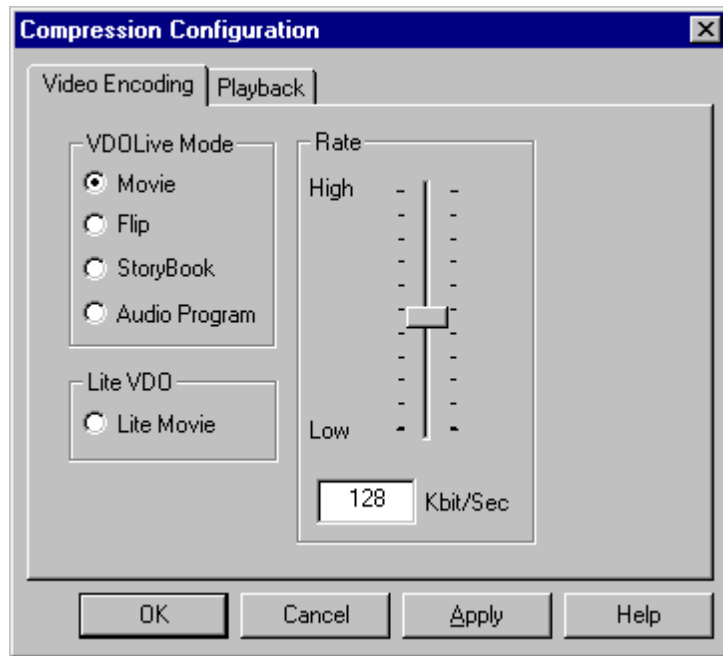


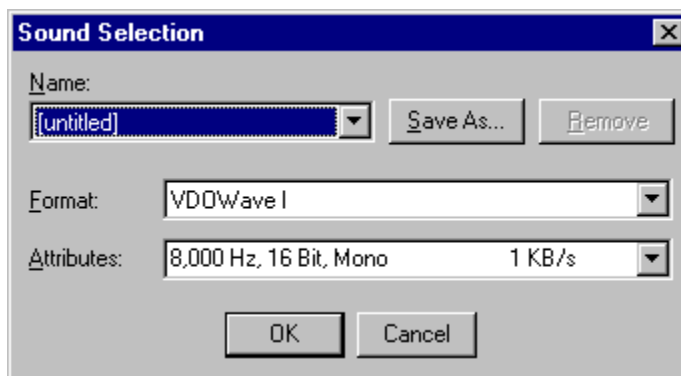
Figure 7 - Compression Configuration, Movie Mode selected

- In the Mode column, click on the radio button next to Movie.
- Set the Video Encoding Rate slider to the appropriate speed by typing a number in the box at the bottom of the slider or by using your mouse to move the bar to the desired point on the slider. (Video Encoding rate explained in section on Compression Rates: page 56)

The audio encoding rate is set automatically and is not user configurable.



11. Click OK through 2 boxes (Compression Configuration, Video Compression) to return to the Compression Options dialog box; this time use it to define compression settings for the audio data.
12. From the list box, select the audio stream.
13. Click on Options. The Sound Selection dialog box opens:



*Figure 8- VDO Clip Sound Selection, VDOLive audio compressor selected*

14. In the Format list box, select the VDOLive audio compressor: VDOWave I.
15. In the Attributes list box, select 8,000 Hz, 16 bit, mono.
16. Click OK through 2 boxes to return to the main VDO Clip window.
17. From the File menu, select VDOEncode.
18. Name the file to which your compressed clip should be saved, and click OK.
19. Compression begins. When compression is complete, you will be prompted to load the MCI Player to view your clip; this is optional.

## *Flip Mode Videos*

### What is a Flip Mode Video?

**Flip Mode** enables you to create high-quality videos for users with limited bandwidth. Since these users cannot receive all the data necessary to see full motion and high quality images, using this mode assigns priority to image quality and reduces motion. Use the same captured video for creating Flip Mode videos as you would for creating VDOLive Movies.

### When to use Flip Mode

Use Flip Mode to compress your videos when:

- You expect your audience to be Internet users with modem connections from 14.4 kbps-28.8 kbps.
- You assign a higher relative priority to video image quality than to motion.

Following are the technical specifications that make this mode different from movie mode:

- Frames of your compressed video will be shown at the highest possible **quality** allowed by:
  - the user's available bandwidth, and
  - the maximum allowed bandwidth per client connection of your VDOLive Video Server.
- Flip mode allows a maximum of 2 frames per second (fps).
- Frames of the captured video are dropped during encoding (compression) to accommodate the 2 fps maximum transmission rate for this mode. The reduced number of frames also ensures higher image

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quality in each frame. The encoder selects which frames to drop; this is not user-configurable.

Since most users, even those with high-speed connections, have limited bandwidth, there is a tradeoff between motion and image quality that determines what data gets through to the viewer and what data is lost. If motion is your highest priority for video, then compress in Movie mode. If you are willing to reduce motion in order to send higher quality images, use Flip mode.

### Compressing Flip Mode Videos

Compressing flip mode videos is the same as compressing VDOLive movies, except that you select flip from the mode column in the Compression Configuration window.

- To compress flip mode videos:
  1. Open an .avi file (File|Open)
  2. From the File menu select Driver Options. The Compression Options dialog box opens. From here you will define compression settings for the video data in your clip.

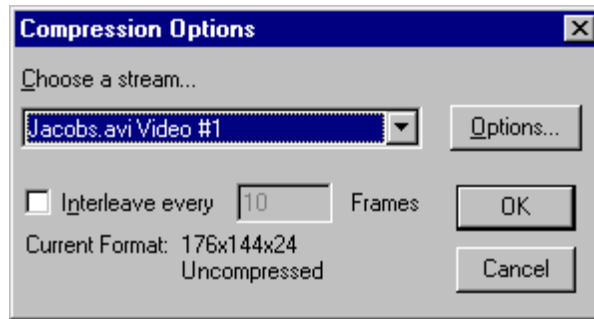


Figure 9- VDO Clip Compression Options, video stream selected

3. In the list box, select the video stream.
4. Check the box next to Interleave. The default setting of every 10 frames usually provides best results, but you can change the Interleave setting here. (More information about Interleave: page 58)
5. Click on Options. The Video Compression dialog box opens:

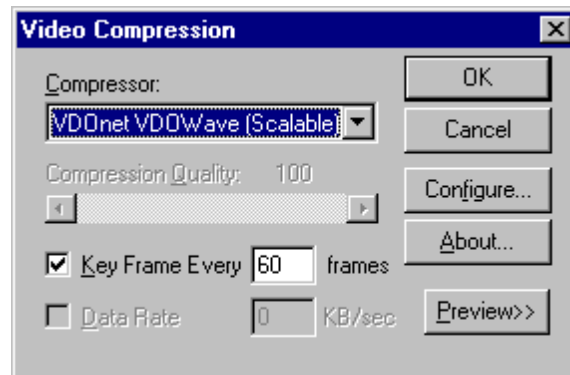


Figure 10 - VDO Clip Video Compression, VDOLive video compressor selected

6. From the list box, select the VDOLive video compressor: VDOnet VDOWave (Scalable).
7. Check the box next to Key Frame Every. The default setting of 60 frames usually provides best results, but you can change the Key Frame setting here. (More information about Key Frames: page 58)
8. Click on Configure. The Compression Configuration window opens:

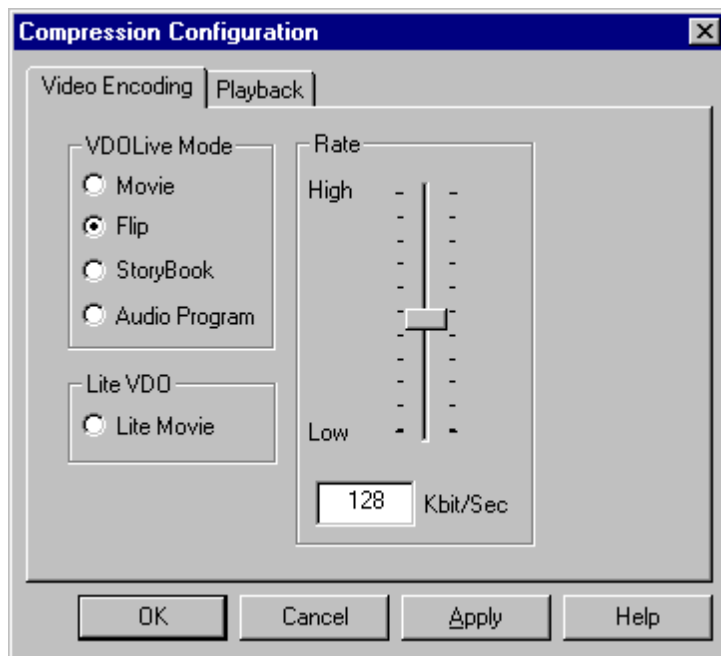
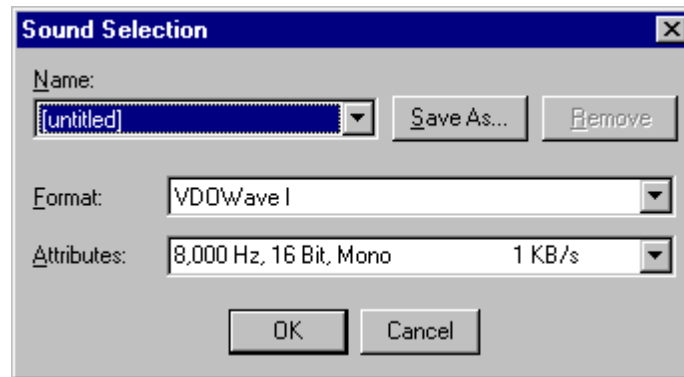


Figure 11 - Compression Configuration, Flip Mode selected

9. In the Mode column, click on the radio button next to Flip.

10. Set the Video Encoding Rate slider to the appropriate speed by typing a number in the box at the bottom of the slider or by using your mouse to move the bar to the desired point on the slider. (Video Encoding rate explained in section on Compression Rates: page 56)
11. Click OK through 2 boxes (Compression Configuration, Video Compression) to return to the Compression Options dialog box; this time use it to define compression settings for the audio data.
12. From the list box, select the audio stream.
13. Click on Options. The Sound Selection dialog box opens:



*Figure 12- VDO Clip Sound Selection, VDOLive audio compressor selected*

14. In the Format list box, select the VDOLive audio compressor: VDOWave I.
15. In the Attributes list box, select 8kHz, 16 bit, mono.

The audio encoding rate is set automatically and is not user configurable.

16. Click OK through 2 boxes to return to the main VDO Clip window.
17. From the File menu, select VDOEncode.
18. Name the file to which your compressed clip should be saved, and click OK.
19. Compression begins. When compression is complete, you will be prompted to load the MCI Player to view your clip; this is optional.

### *Lite VDO Movies*

#### What is a Lite VDO Movie?

Lite VDO movies create AVI files that can be converted to VDOLive AVS file format and served directly from an HTTP (Web) Server. These files can be received by any user and so provide a way of reaching audiences behind firewalls that do not allow VDOLive content.

#### When to use Lite VDO Mode

Use Lite VDO to compress your videos when:

- Your audience is viewing video from behind a firewall that does not allow VDOLive video. The quality of VDOLive video is superior to that of Lite VDO movies, so use Lite VDO only when necessary to reach this audience.

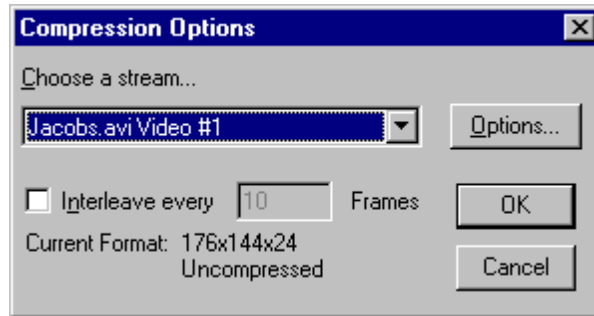
Users behind a firewall whose System Administrator has allowed VDOLive video, or whose firewall supports VDOLive video, can see VDOLive video compressed in any mode and do not require Lite VDO.

Following are the technical specifications that make this mode different from VDOLive modes:

- Maximum encoding rate of 128 kbps.

## Compressing Lite VDO Movies

- To compress Lite VDO movies:
  1. Open an .avi file (File|Open)
  2. From the File menu select Driver Options. The Compression Options dialog box opens. From here you will define compression settings for the video data in your clip.



*Figure 13- VDO Clip Compression Options, video stream selected*

3. In the list box, select the video stream.
4. Check the box next to Interleave. The default setting of every 10 frames usually provides best results, but you can change the Interleave setting here. (More information about Interleave: page 58)
5. Click on Options. The Video Compression dialog box opens:



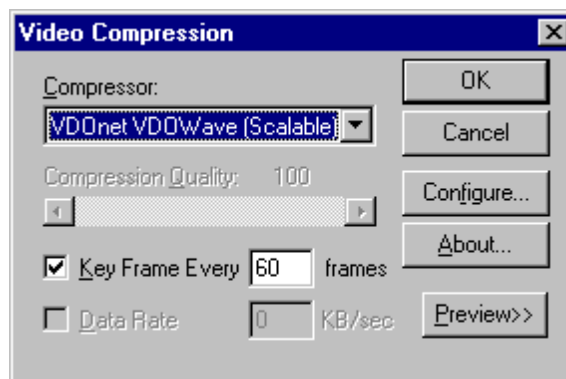


Figure 14 - VDO Clip Video Compression, VDOLive video compressor selected

6. From the list box, select the VDOLive video compressor: VDOnet VDOWave (Scalable).
7. Check the box next to Key Frame Every. The default setting of 60 frames usually provides best results, but you can change the Key Frame setting here. (More information about Key Frames: page 58)

- Click on Configure. The Compression Configuration window opens:

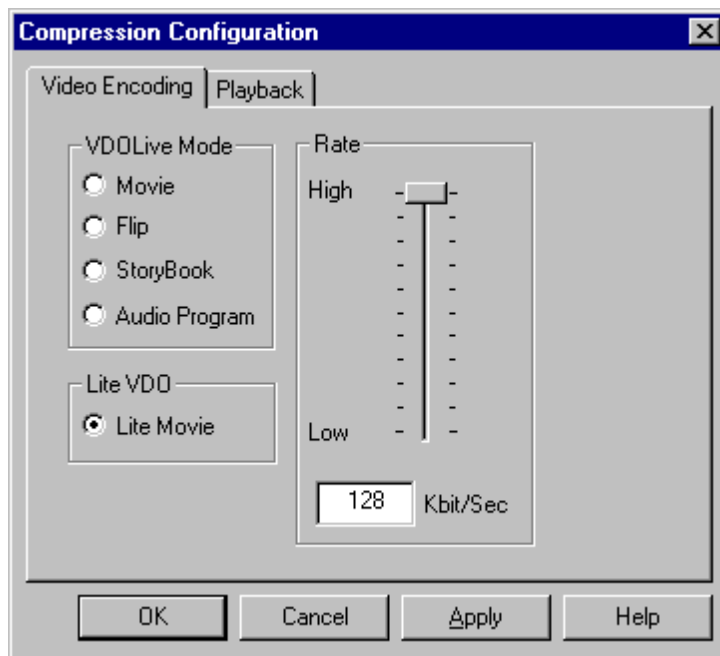


Figure 15 - Compression Configuration, Lite VDO mode selected

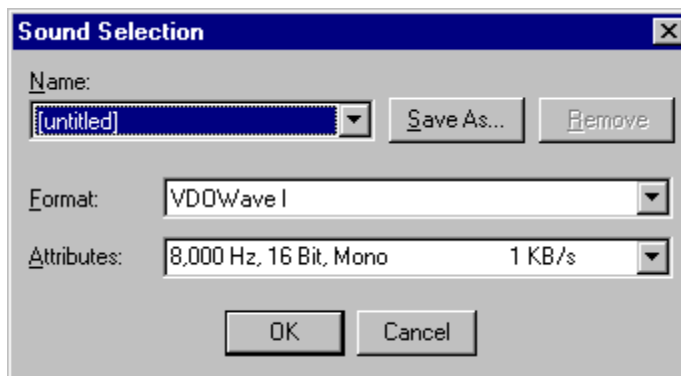
- In the mode column, click the radio button in the Lite VDO mode box, next to Lite VDO.
- Set the Video Encoding Rate slider to the appropriate speed by typing a number in the box at the bottom of the slider or by using your mouse to move the bar to the desired point on the slider. (Video Encoding rate explained in section on Compression Rates: page 56)

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The video encoding rate slider is limited to a maximum of 128 kbps in Lite VDO mode.

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11. Click OK through 2 boxes (Compression Configuration, Video Compression) to return to the Compression Options dialog box; this time use it to define compression settings for the audio data.
12. From the list box, select the audio stream.
13. Click on Options. The Sound Selection dialog box opens:



*Figure 16- VDO Clip Sound Selection, VDOLive audio compressor selected*

14. In the Format list box, select the VDOLive audio compressor: VDOWave I.
15. In the Attributes list box, select 8kHz, 16 bit, mono.

---

The audio encoding rate is set automatically and is not user configurable.

---

16. Click OK through 2 boxes to return to the main VDO Clip window.

17. From the File menu, select VDOEncode.
18. Name the file to which your compressed clip should be saved, and click OK.
19. Compression begins. When compression is complete, you will be prompted to load the MCI Player to view your clip; this is optional.

### *Creating AVS files from Lite VDO Movies*

Once you have created Lite VDO Movies, you must convert them to AVS format for serving from a Web (HTTP) Server. Regular VDOLive compressed AVI files can be served only from a VDOLive Server, not from a Web server.

- To convert Lite VDO Movies to AVS files:
  1. Open the Converter tool from the VDOLive Tools folder or program group.
  2. Type in or use the Browse button to enter the name of the Lite VDO Movie in the Input Filename box.
  3. Type in or use the Browse button to enter the name of the AVS file to be created from the Lite Movie.
  4. Click the Convert button.

---

Refer to the separate document [Making your VDOLive Content Available on the World Wide Web](#) for more information about storing and serving AVS files from a Web (HTTP) Server and for instructions on using the Converter for creating AVS content from VDOLive AVI files.

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## **Audio / Graphic (Non-Video) Modes**

In VDO Clip's Storybook and Audio Program modes, the source material you are working with will be still graphic images, usually bitmap files, and not AVI files. Therefore, functions such as opening an AVI file or editing video data are not relevant to these modes. For information about editing, refer to the section beginning on page 48.

### *Audio Programs*

#### What is an Audio Program?

Audio Programs are files of compressed audio. They include, and are limited to, **one** graphic image at the beginning of the clip.

#### When to use Audio Programs

- Create audio programs whenever you have only audio content.
- The graphic image at the beginning can be a picture, corporate logo or any other image and is displayed throughout the Audio Program.
- The graphic must be **pasted** into the clip.
- The format of your source audio must be 8 kHz, 16 bit, mono.

Radio programs are easily adapted to this format, as are audio clips you use to explain your products or services. Additional uses of this format include interviews, training instructions, press releases and news.

#### Compressing Audio Programs

You must paste one graphic image at the beginning of an Audio Program.

Included with the VDOLive Tools is a file containing one frame of video, named *vdologo.bmp*. You can use *vdologo.bmp*, or any other graphic as

the one required frame in your Audio Program. The procedure below uses *vdologo.bmp* as an example. You can find *vdologo.bmp* in the program folder to which you installed the VDOLive Tools.

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To compress your audio content with additional graphics, use Storybook Mode.

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- To create and compress an audio program:
  1. Open VDO Clip.
  2. From the Play menu, select Video Rate Control. The Compression Configuration window opens:

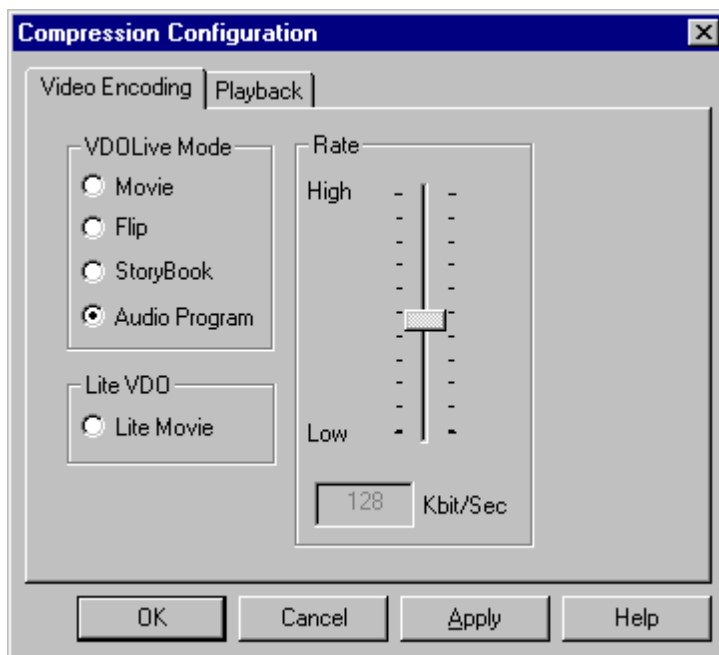


Figure 17 - Compression Configuration, Audio Program mode selected

3. In the mode column, click the radio button next to Audio Program.

The video encoding rate slider is disabled in this mode; the encoding rate is set automatically for audio programs.

4. Click OK to return to the main window of VDO Clip.
5. Open *vdologo.bmp* in a graphics program. (such as Paint™, from Windows 95 Accessories)
6. Copy *vdologo.bmp* to the Clipboard.

7. Return to VDO Clip.
8. Select Paste from the Edit menu of VDO Clip. Your image appears as one frame in the video stream.
9. Select File|Merge. The Merge With dialog box opens.
10. Browse for, or enter the name of, an audio only file in *.avi* or *.wav* format and click Open. The audio stream appears in your clip.

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If you are copying an images from any program other than Paint™ and it won't paste into VDO Clip, try first pasting into Paint™ and then to VDO Clip.

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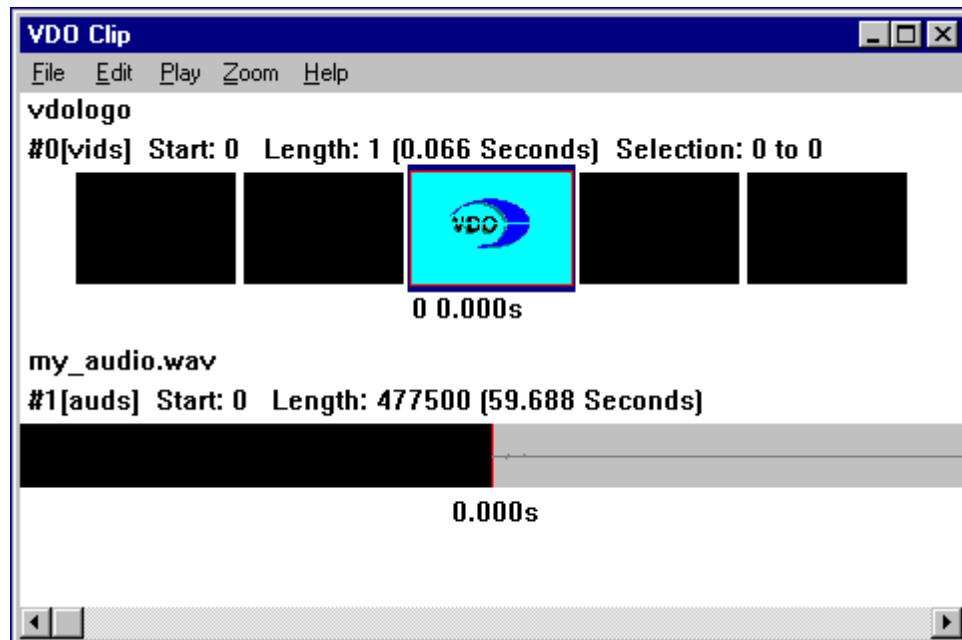


Figure 18 - VDO Clip, with one bitmap and an audio stream

11. Select Edit|Info. The *Info* dialog box opens:

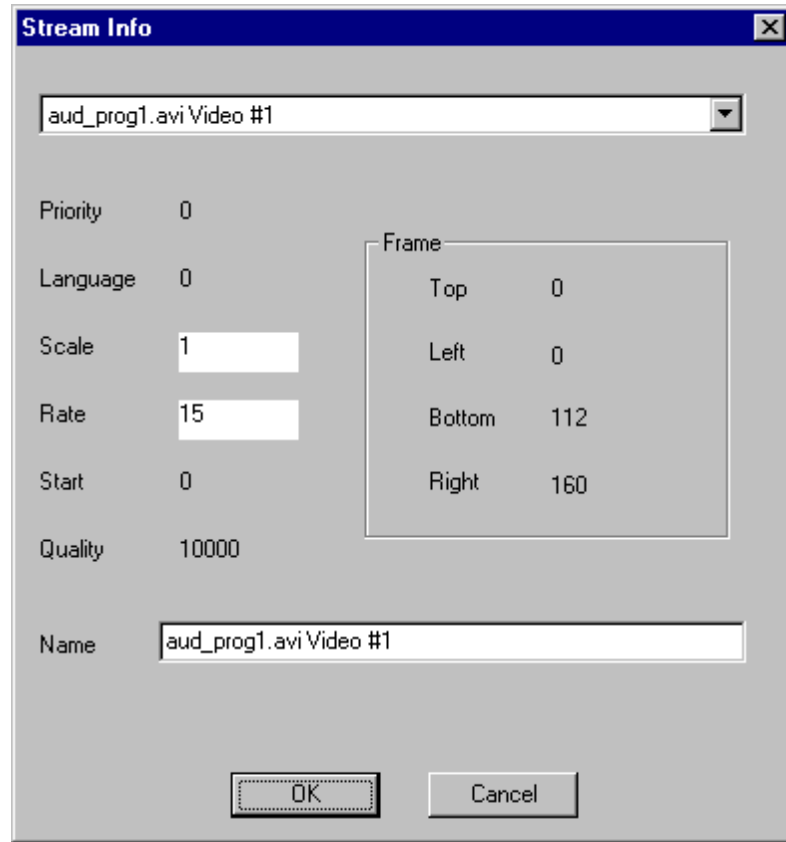


Figure 19 - VDO Clip Stream Info window

12. In the Name box at the bottom of the Info window, enter the name for the video (one frame) and audio streams of your Audio program, then click OK to return to the main window of VDO Clip.

13. From the File menu, select VDOEncode.
14. Name the file to which your compressed clip should be saved, and click OK.

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The Interleave and Key Frame settings do not matter for an audio program.

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Should you wish to use SaveAs to compress the Audio Program, be sure to use Driver Options to select the VDOLive codecs for both video and audio.

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## *Storybooks*

### What is a Storybook?

**Storybook Mode** produces clips of graphic images (not video), with or without an audio stream and is intended for use when your viewers are Internet users with low bandwidth connections, such as 14.4 kbps modems, or when your content is graphic, not video.

You define the interval for which each graphic will be displayed and, if you are synchronizing the pictures with audio, coordinate the changing pictures with the audio content.

Storybook clips have no motion. They can display up to 2 frames per second to viewers, but work best when set to display one frame every 10 seconds or more.

Graphics used for Storybook clips must be uniform in their size and in their color depth, in addition to being in sizes and color depths supported by VDOLive compression. (see page 59 for supported formats).

Using a video editing tool, such as Adobe Premiere™ (version 4.2) or Ulead's Media Studio™, is the easiest way to create storybooks, however, procedures for creating storybooks using VDO Clip for editing are also described in the following section.

### When to use Storybook Mode

Storybooks are intended for users with low bandwidth Internet connections, and are different from VDOLive movies or flip mode videos in that storybooks use only graphics files as input, not video content.

Your viewers will see every frame of the content compressed in this mode; no frames will be dropped during transmission because of Server scaling. Additionally, the VDOLive Video Player displays a message telling viewers they are seeing a storybook. Create storybooks, and compress in Storybook mode when:

- Your content is still graphic images, not video.
- Your users have low-bandwidth Internet connections, such as 14.4 kbps modem connections.

Possible uses of this mode are for any training or marketing presentation, an “art gallery” storybook file, where you show still images of paintings or art pieces, with or without an accompanying musical track or narration, or for an online illustrated book, with the accompanying narration.

### Creating and Compressing Storybooks

Two steps are involved in creating the material for your storybook before you compress:

1. Assembling all your images either in VDO Clip, or in a video editing program such as Adobe Premiere™ (4.2) or Ulead's Media Studio™.

2. Synchronizing the images with the audio and determining the length of time for which each image will be shown.

You will achieve best results when you set a display interval of one frame every 10 or more seconds.

Following are two methods for creating and compressing storybooks. The first uses VDO Clip both as the editing tool and for compression, and the second uses Adobe Premiere™ version 4.2 with VDOLive compression.

### *Using VDO Clip*

In this method you define the **frequency** with which you want the graphic images to change.

#### **With VDO Clip on Windows 95**

- To create and compress a storybook using VDO Clip:
  1. Open VDO Clip.
  2. From the Play menu, select Video Rate Control. The Compression Configuration window opens.

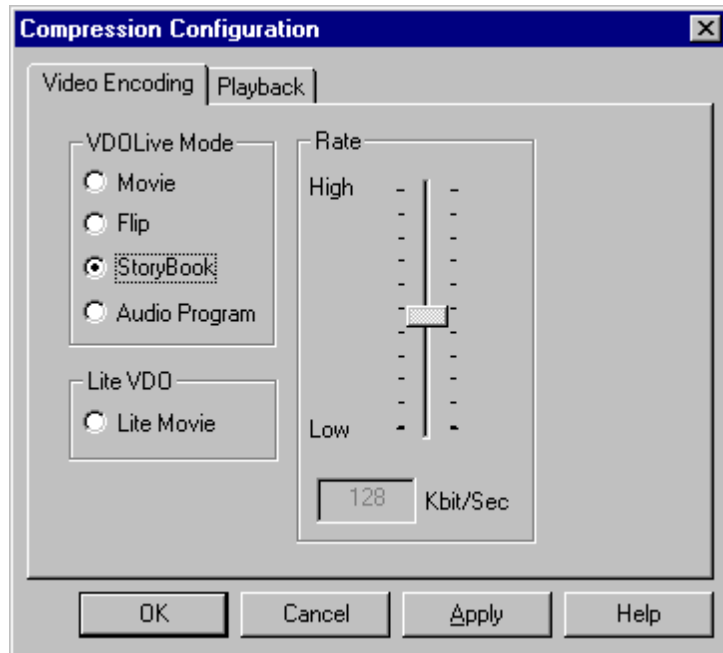


Figure 20 - Compression Configuration, Storybook mode selected

3. Click on the radio button next to Storybook in the Mode column.

The video encoding rate slider is disabled in this mode; both the video and audio encoding rates are selected automatically.

4. Click OK to return to the main window of VDO Clip.
5. Paste graphic images from any graphics application in to VDO Clip (Edit|Paste).

Make sure all the images are in a supported and **uniform** size and color depth. (see page 59 for supported formats).

6. Use Merge (page 51) to add an audio stream to your clip. Check that the audio stream is in a supported format.
7. **Optional:** Name the two streams. Select Edit|Info. Select the stream names from the list box at the top of the Info window and enter a name for each in the dialog box at the bottom of the Info window.
8. Select Info from the Edit menu. The Stream Info dialog box opens:

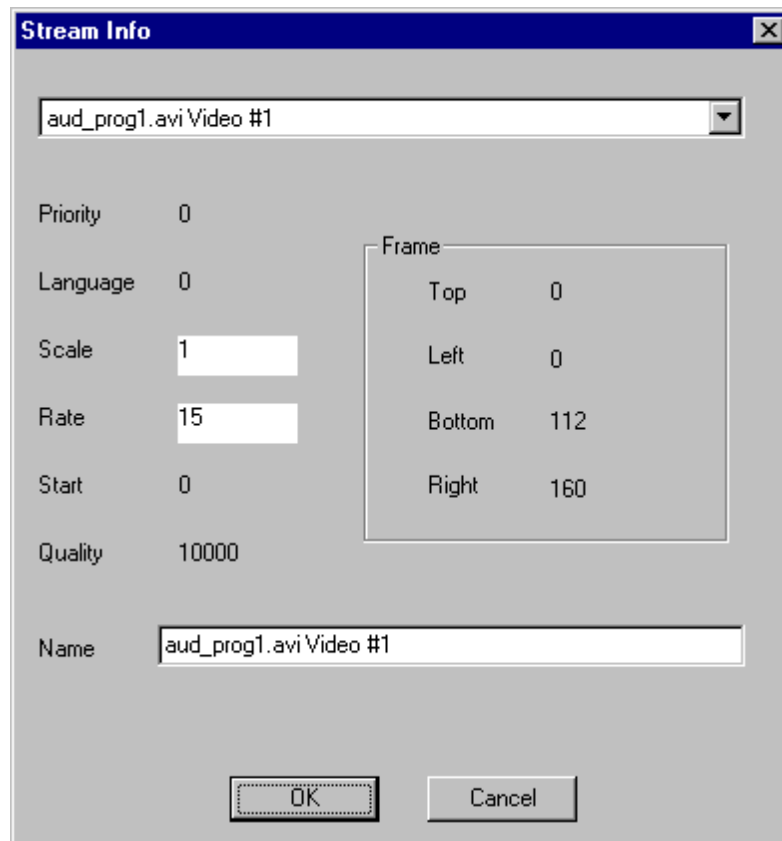


Figure 21 - VDO Clip, Stream Info window

Define **duration**, the length of time in seconds for which each frame will be displayed, by setting the *Scale* and *Rate* as follows:

Duration per frame, in seconds =  $\text{Scale}/\text{Rate}$



For example, to display each frame for ten seconds, enter 10 in the *Scale* box and 1 in the *Rate* box.

If you determine that a storybook will display at a rate of one frame each 10 seconds, for example, and then you want to display certain frames for longer, replicate those frames and insert them as many times as needed. For example, to display one picture for 30 seconds in a storybook with a rate of one frame per 10 seconds, insert that frame 3 times in a row in the video stream.

9. From the File menu, select Driver Options. The Compression Options dialog box opens:

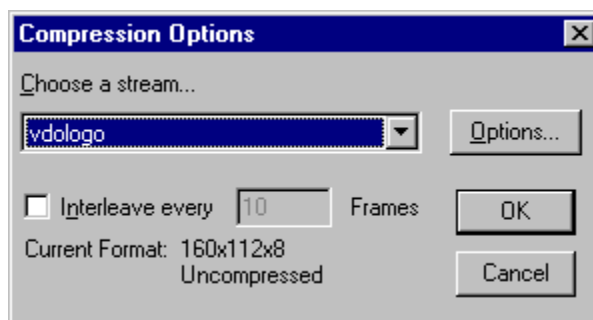


Figure 22 - VDO Clip Compression Options dialog box

10. Check the box next to Interleave and change the setting from every 10 frames (the VDO Clip default) to every 1 frame. Click OK to return to the main window of VDO Clip.
11. Select VDOEncode from the File menu; a browse box opens. Name the file to which compressed data should be saved and click OK. Compression begins, and stops automatically when complete.

### **With VDO Clip on Windows NT**

- To create and compress storybooks using VDO Clip on Windows NT:
  1. In Paint™ or any other graphics program, open *vdologo.bmp* (or any other bitmap).
  2. Select Copy. In Paint™ for Windows NT, you must first outline the image using the pick tool.
  3. Open the ClipBook Viewer (from Main).
  4. From the Edit menu of the Local ClipBook Viewer, select Paste.
  5. Enter a page name.
  6. From the Window menu, switch to the Clipboard window.
  7. From the View menu, check the DIB Bitmap option.
  8. Switch to VDO Clip and paste *vdologo.bmp* (Edit|Paste).
  9. In the File menu, check that VDOEncode is enabled. If it is not, *vdologo.bmp* may have been truncated when it was selected for copying. If the width of *vdologo.bmp* or any other bitmap you are using is not evenly divisible by 16, then the bitmap cannot be used for VDOLive compression.
  10. Repeat this procedure for each bitmap.

Create the rest of the audio program or storybook as you would under Windows 95.

### *Creating and compressing a storybook using Adobe Premiere™*

In this method you define the amount of time for which each frame will be displayed.

- To create and compress a storybook using Adobe Premiere™ version 4.2:

Make sure that the audio format is supported by VDOLive compression, that the images are in a size and color format supported by VDOLive compression and that all the images are the **same** size and in the same color format as each other. (For information about sizes and colors supported by VDOLive Compression see page 59.)

1. Import (File|Import) graphic images and audio stream into your Project Window.
2. Move the audio stream and images from the Project Window into the Construction Window. You can either set the duration for each image as you move it, or adjust the duration by dragging the right border of the images.
3. Open the Make Movie dialog box (Make|Make Movie)
4. In Output Options|Type, select VDOnet VDOWave I for audio compression.
5. In Output Options|Type, set Interleave to every 8 frames. Click OK to return to the Make Movie dialog box.
6. In Make Movie|Compression, select the Method: VDOnet VDOWave (Scalable).
7. Click Configure and select Storybook mode. Click OK to return to the Compression Settings dialog box.
8. Make sure the Optimize Stills option is deselected (unchecked).
9. In Compression Settings|Special Processing|Settings, make sure the Better Resize option is deselected (unchecked). Return to the Compression Settings dialog box.

10. In Options, set frames per second to 1.

11. In Options, set the key frames to every 1 frame. Click OK to return to the Make Movie dialog box.

12. Name the file.

13. Save.

If you have trouble playing audio programs using the MCI Player, and you created the clips using Adobe Premiere, check that the length of the video stream is set to the same duration as the duration of the audio stream. Do this by setting the duration in the Construction Window. In the Compression Settings window, make sure the frame rate is set to 1 frame per second.

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Define a “preset” of all the relevant settings for using VDOLive compression with Adobe Premiere™. Only version 4.2 of Premiere includes VDOLive compression.

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### ***About VDOEncode***

VDOEncode selects the VDOLive VDOWave compressors for audio and video data. If you are using this compression mode, you do not have to select the VDOLive codecs from Driver Options, however, you still have to define appropriate key frame, interleave, mode and rate settings.

Before you begin compression using VDOEncode, make sure that:

- Your data is uncompressed. To compress previously compressed data, use SaveAs.

- The file is in a format supported by VDOLive compression; if either the audio or the video data is in an unsupported format, VDO Encode is disabled.
  - Encoding settings (including key frames, interleave and mode, as well as rate where applicable) have been configured; if they haven't, the compressor will use the last settings.
- To compress using VDOEncode:
1. Open the *.avi* file you want to compress, if it is not already open.
  2. Choose VDO Encode.
  3. When prompted, name the output file for the compressed data.  
Compression begins, and stops automatically when complete.
  4. Exit using the `ESC` key.

## Saving and Closing Clips

Saving data is part of the compression process and, whether you use `SaveAs` or `VDOEncode`, you are prompted to name the output file in which to save the compressed data.

Use `SaveAs` to:

- To save files of uncompressed or previously compressed data, according to the driver settings.
- To save edited and unedited versions of the same clip under different file names.
- To compress using non-VDOLive compressors.

## ***Saving Uncompressed Data***

You may want to save data uncompressed if, for example, you used VDO Clip only to remove empty space from a file (see pages 29 and 31 in the section on Allocating File Space for more information), or only to edit data.

- To save uncompressed data:
  1. Select File|Driver Options to check that the Compressor selected for the **video** stream is *Full Frames, Uncompressed*.
  2. Select File|Driver Options to check that the Format selected for the **audio** stream is the same as in the original clip.
  3. Use SaveAs to name the file and save it.

## ***Saving Compressed Data***

### *Saving Data without Recompressing*

If you opened an .avi file with data previously compressed using **VDO Live or any other compression**, and want to resave it **without recompressing**, use the following procedure.

- To save compressed data without recompression:
  1. Select File|Driver Options. In the Compression Options box, select the **video** stream and click on the Options button.
  2. In the Video Compression box, check that the Compressor selected is *No Recompression*. Click OK to return to Compression Options.
  3. Select the **audio** stream and click on the Options button.
  4. In the Sound Selection dialog box, check that the Format is the same as in the original clip.
  5. Check that the Interleave setting is the same as in the clip when you opened it. If it isn't, re-check the Interleave check box or change the number in the Interleave box.
  6. Use SaveAs to name the file and save it.

### *Saving Data with Recompressing*

You will achieve best results using VDO Clip and the VDOLive codecs when you use uncompressed data. However, you can use VDO Clip to save and recompress previously compressed data. Examples of situations in which you might want to do this are:

- You don't have the original, uncompressed version of a clip.
- Your capture card output is compressed video.

The following conditions are required in order for VDO Clip to recompress:

- You must have the decompressor appropriate to the format in which the material was previously compressed. For example, if a clip was previously compressed using the Indeo® (Intel) codec, you must have this codec installed on your system in order for recompression to work.

- The video and audio data must be in formats supported by VDOLive compression. See page 59 for supported formats; page 51 for ways to convert audio from an unsupported format.

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Use File|Properties|Details to find out the compression format of a clip. You can find out what video and/or audio codecs are installed on your system by using Control Panel|Multimedia|Advanced|Video Compression Codecs –or– Audio Compression Codecs

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- To save compressed data and recompress it:
  1. Select File|Driver Options. In the Compression Options box, select the **video** stream and click on the Options button.
  2. In the Video Compression box, select the driver you want to use for compression. It can be the VDOLive video codec or any other. Click OK to return to Compression Options.
  3. Select the **audio** stream and click on the Options button.
  4. In the Sound Selection dialog box, select the Format in which you want to compress the data. It can be VDOLive format or any other.
  5. For VDOLive compression, use the default key frame setting of every 60 frames and set interleave to every 10 frames. For compression using another codec, use settings appropriate to that codec.
  6. Use SaveAs to name the file and save it.

---

If you cannot find the VDOLive video/audio codecs in the appropriate Driver Options list box, your clip may be in a format unsupported by VDOLive compression.

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### *Saving and Compressing using a non-VDOLive Compressor*

You can compress using a non-VDOLive compressor via the Save As Option.

- To begin compression using Save As:
  1. Open the .avi file you want to compress.
  2. From the File menu, select Driver Options. The Compression Options box opens.
  3. Select the compressor you want to use, and make any other changes you want to the compression settings.
  4. Select File|SaveAs.
  5. Enter the file name and path and click OK. Compression begins, and stops automatically when complete.

### *Closing a File*

- To close a file:
  1. Select Close from the File menu.

## **Testing Clips**

### *Using Local Playback*

You can test the video image quality of any VDOLive clip by playing it using the Windows Media Player. However, this will not accurately represent what users will see when viewing the same clip over a network, from a VDOLive Server.

### ***Using Playback from VDO Clip***

For VDOLive Movies, you can also use the Playback function of VDO Clip to simulate playback of the clip at different speeds. Because all other modes have built-in limits on their speed, this function is not useful for clips compressed in other modes.

When you use the Playback function, you are playing video from your local disk or network, but not via a VDOLive Video Server. Generally, viewers will have to contend with a higher level of network traffic than your Playback conditions, and the VDOLive Video Server will scale according to the actual bandwidth of each viewer's connection.

- To use Playback to test a VDOLive Movie:
  1. Open a clip.
  2. Open the Playback page (Play|Video Rate Control|Playback).
  3. Set the rate you wish to simulate, using the Playback rate slider.
  4. Play the clip.

### ***Using the VDOLive Player***

You can use the VDOLive Player in standalone mode to test compressed VDOLive clips. The clips must first be uploaded to the VDOLive Server.

- To use the VDOLive Player to test playback quality of compressed clips:
  1. Open the VDOLive Player and click on the Play button. A dialog box opens.
  2. Enter the complete location and name of the file you are testing.

**vdo://VDOLiveServerHostName|Server IP  
address[:Server port]/FileNameOnServer.avi**

For additional information, about using the VDOLive Player for testing clips, and for information on testing AVS clips, refer to the separate document: [Making your VDOLive Content Available on the World Wide Web.](#)

## Exiting the Compression Tool

Before exiting VDO Clip, be sure to save open files.

- To exit VDO Clip:
  1. Choose Exit from the File menu.

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## Appendix A: Troubleshooting Your Capture Equipment

The following is a short checklist of some common hardware problems and solutions related to use of VDO Capture.

### ***No picture in VDO Capture***

Check your video source:

- **Signal.** Possible signals are NTSC, PAL and SEACAM. Make sure you are set to the right signal.
- **Input.** Check if your video input settings match your equipment connections, composite or S-VHS.
- **Quality** of source. Try playing the video on different equipment, or viewing it on a different screen. If the quality is still poor, the video tape may be damaged. Flaws in the original video show up in captured data.

### ***No audio and no video in VDO Capture***

- Check all your hardware connections including proper connection to power source.
- Are the video out ports of your video source connected properly to the capture card?
- Are the sound and video cards installed properly? Check IRQ and DMA settings for conflict with other devices. Refer to the relevant documentation for information on these settings.

### ***Video, but no audio in VDO Capture***

- Check audio source and speakers

- Is there a volume control you can use to turn up the sound level?
- Is there a sound, mixer or control panel software device? Try adjusting the volume from there.
- Are you using S-Video? If so, you must use separate cables to carry the audio.
- Check to see that speakers are properly connected.

### ***Audio, but no video in VDO Capture***

- Check that your Video Source is set accurately. (in VDO Capture, Options|Video Source) If you are not sure which signal you are using, try each (S-Video or Composite) and see which works.