
DocuView™

The DiscoverPro Utility for Viewing QuickTime Documents

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Introduction

Electronic publishing is now feasible using QuickTime movies with DocuView™ (DV). QuickTime (QT) was designed to provide animation capability for the Macintosh. With the current hardware limitations the image size must be limited to small sizes to achieve acceptable frame display rates. However, if display rate is not critical, much larger images can be displayed¹. Furthermore, QT images are basically bit-mapped graphics that support color. Of course, QT can include all fonts associated with different languages and special symbols such as occur in mathematics and chemistry, which the 72 dots per inch resolution of the Macintosh screen represents satisfactorily. QT images can originate as bit-mapped graphics, or you can transform them into a particular format by a scanner, by conversion word processor, or other documents. After converting the documents into this format, you can transmit them via computer network and then display them using DocuView.

DocuView is a specially enhanced QT movie player; the code has been extracted from DiscoverPro™ to create this simple display application. The enhancements include the capacity to display large images on all screen sizes a) by controlling the image display size and b) by adding commands for convenient scrolling of the movie frames. For rapid access of specific portions of a document, the usual keyboard and mouse scrolling are supplemented with Bookmarks. These user-defined bookmarks serve as hypertext links for the table of contents. You can adjust the ordering of the bookmarks in the menu simply by sorting or by dragging. An over-ride of the picture-sound synchronization is provided so you can browse ('play') a document without repeated mouse or keyboard clicks. You can navigate throughout a document using either the mouse or the keyboard or a combination of these. The keyboard controls are listed in a 'help' window. Regardless of its originating application, QT movies can be made 'double-clickable' using the 'Save As' command. DV can also print QT frames.

¹ This approach was suggested to us by M.Stuart Lynn.

Candidates for the DV electronic documents range from text-only documents such as course catalogs and course and room rosters to complex technical documents involving a mixture of text, graphics, mathematics, etc. Apple -supplied software allows you to transform the pages of a word processor document into movie frames. Various third-party vendors provide QT movie creation tools. At least one vendor supplies hardware and software for transforming VCR movies into QuickTime movies. You can distribute these documents electronically and view them using DV. The DiscoverPro application also provides a means for organizing DV documents and even a link for retrieving these from remote servers on Internet.

You can change the customary publishing cycle of 'print, then distribute' to 'distribute, then print' for a more economical and faster distribution process. This means, for example, that a faculty member might browse through journal articles electronically and print only those pages or articles truly relevant, assuming, of course, that the copyright holder, if any, allows this.

The DV icon and DV document icons are shown in Figure 1. DV can open and play all QT movies; other QT players can open DV documents, but they do not provide the convenient vertical scrolling required to view document images larger than the Macintosh screen.



Figure 1 DocuView icons

DV Menus

The DV menu bar (Figure 2) includes the obligatory File, Edit, and Windows menus plus three more control menus—Movie, Size and Bookmarks.

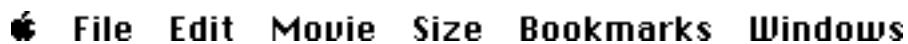


Figure 2 DV Menu Bar

Apple Menu

The first command on the Apple menu (Figure 3) provides access to the DV startup splash screen and copyright notice. The splash screen also notes the relationship of DV to DiscoverPro. A site license for DiscoverPro includes non-exclusive distribution rights for DV; copies so licensed will indicate this fact on the splash screen (Figure 4).

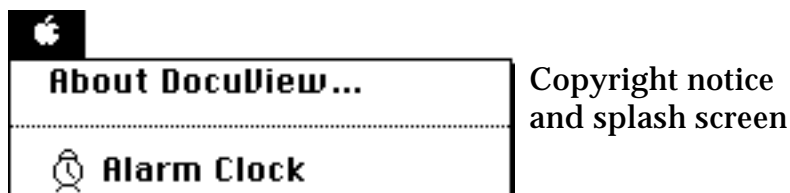


Figure 3 Apple menu

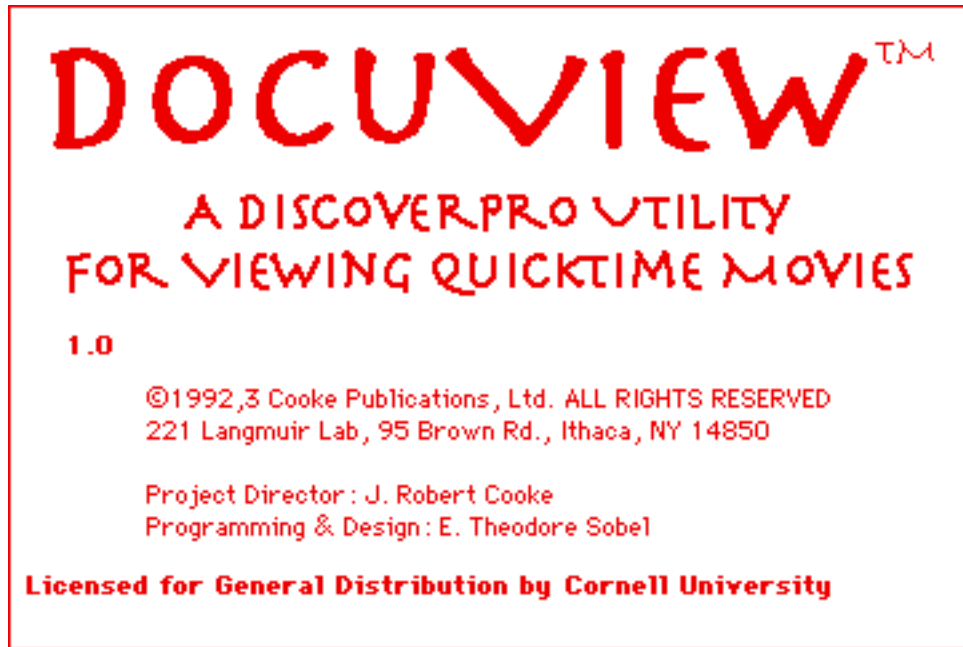


Figure 4 DV Splash Screen with Copyright Notice

File Menu

The file menu provides the expected file management commands:

Open (⌘ O): Open a QT movie file using the usual directory navigational options (Figure 6). Optionally, you can display a miniature portrait of the Poster frame (i.e., the frame you designate as the startup or most representative frame of the movie). Multiple documents can be open simultaneously. If you must open many large documents simultaneously, you should allocate additional RAM to DV. The names of all open files appear on the Windows menu. Command 'O' (i.e., ⌘ O) is the keyboard equivalent.

- **To allocate memory to DV:**

- 1) Before opening DV, click in its icon to highlight, i.e., select, DV.
- 2) Use the Get Info command on the File menu of the Finder (or use I).
- 3) If necessary, use the check box to unlock the file.
- 4) Assign the desired 'Current size'.

File		
Open...	⌘O	Open a file
Close	⌘W	Close the active file
Save	⌘S	Save the file (& Bookmarks)
Save As...		Save file using options
<hr/>		
Page Setup...		Establish page specs
Print...	⌘P	Print frames
<hr/>		
Quit	⌘Q	Terminate session

Figure 5 File Menu

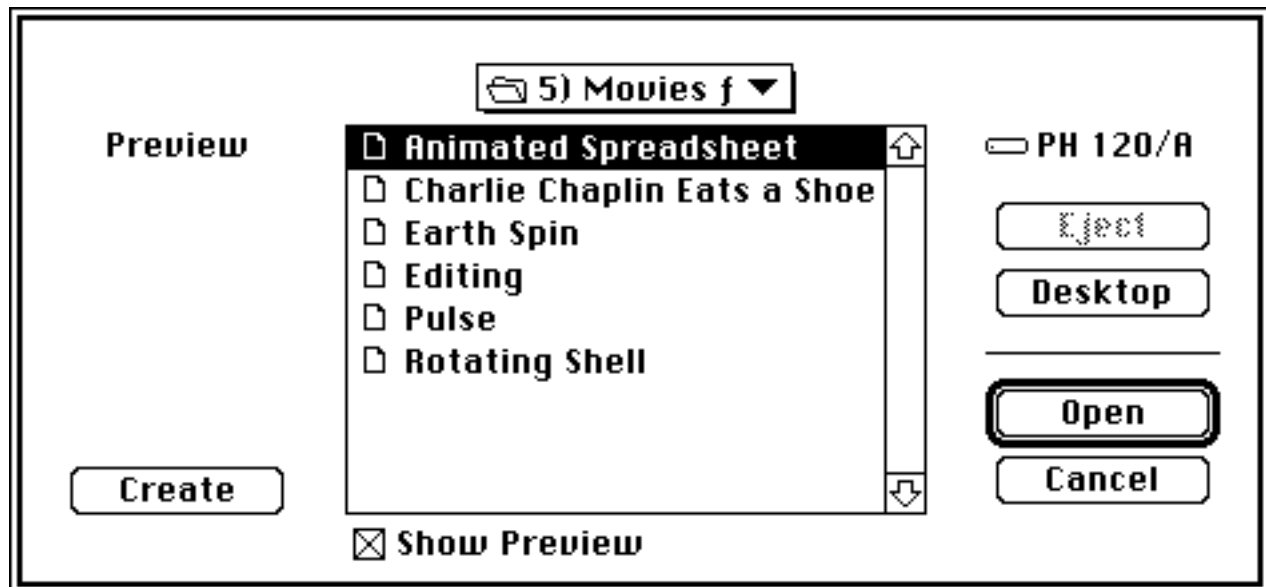


Figure 6 Open File Dialog

Save (⌘ S) and Save As... When at least one DV file is open, the Save and Save As commands are enabled. No editing of the actual QT movie is possible, but there are two important uses for the file saving commands: saving bookmarks you add to a document and updating the icon associated with DV. If you save a file using DV, DV associates the DV document icon with the file. (When you use Save, rather than saving a new copy at a different location with Save As, you may need to rebuild the Macintosh desktop to update the icon by holding command-option down during startup. The keyboard equivalent for the Save command is ⌘ S.

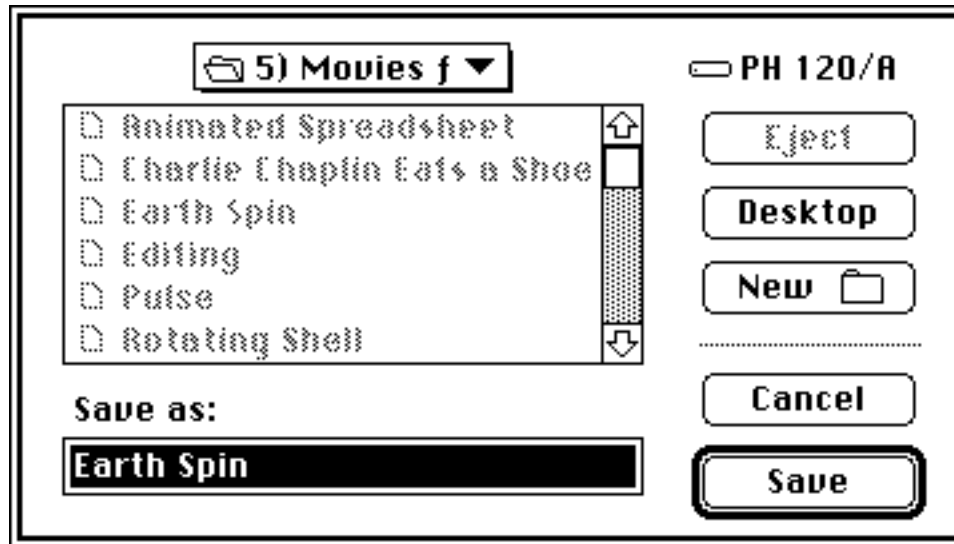


Figure 7 Save File Dialog

Page Setup & Print (⌘ P) The Page Setup dialog is printer specific and contains the usual choices (Figure 8) These print commands operate just as they do for a word processor.

Note: If an image refuses to print, try switching between Black & White and Color/Grayscale (Figure 9). The keyboard equivalent for the print command is P.

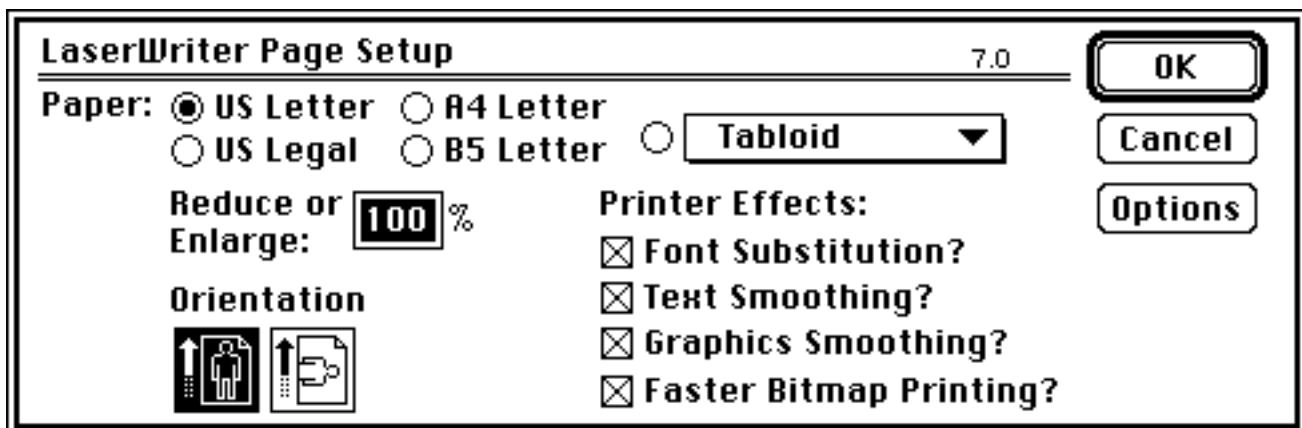


Figure 8 Page Setup Dialog

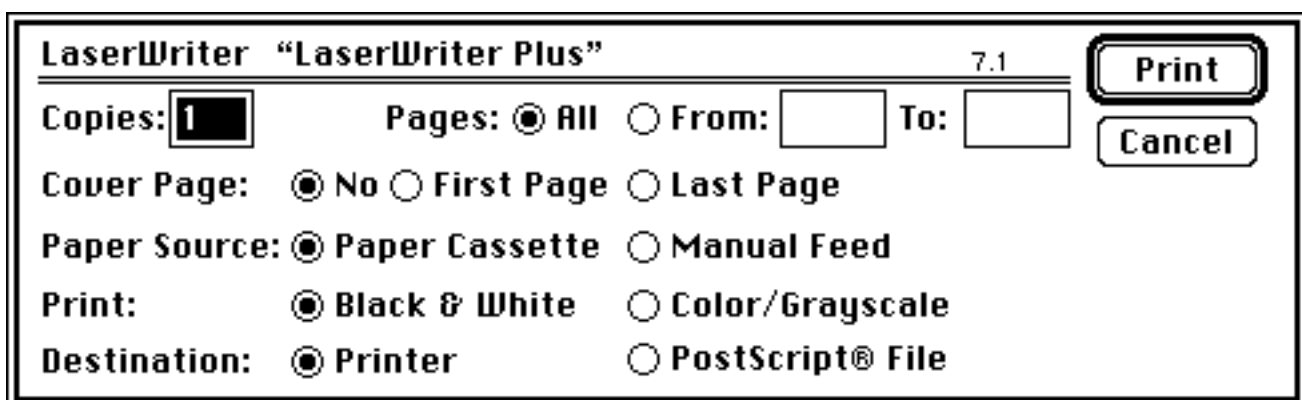


Figure 9 Print Dialog

Quit (⌘ Q) Use the Quit command to terminate the program. If you have created or modified bookmarks since saving the file, DV warns you to save the file before terminating.

Edit Menu

The Edit menu (Figure 10) is non-functional, but is included as required by the interface standards.

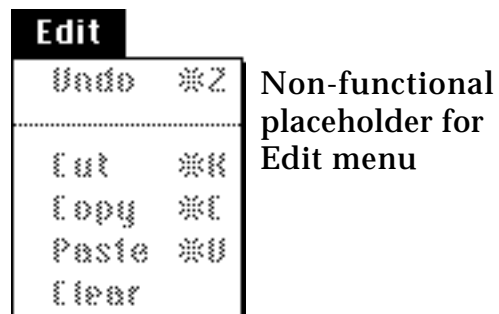


Figure 10 Edit Menu

Movie Menu

The Movie menu controls the document window (Figure 11); but you can also execute most commands by mouse action in the document window or by keyboard command. The Shortcut window contains a complete, online list of keyboard commands. The playback controls are on the Movie menu ,too (Figure 12).

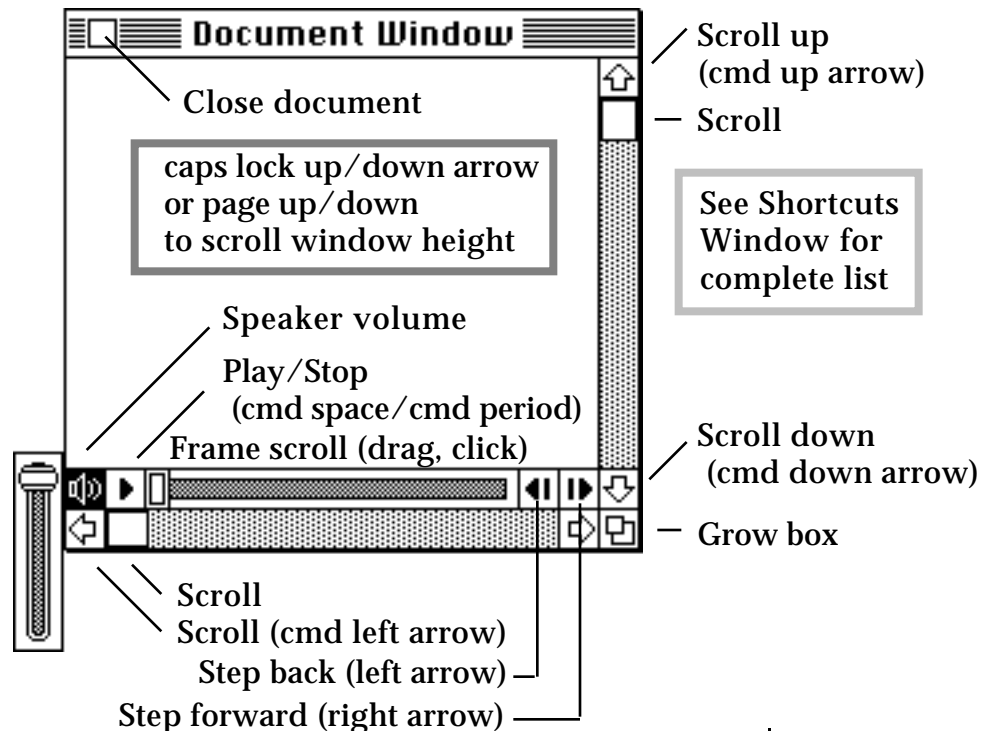


Figure 11 Document Navigation commands

Play (⌘ spacebar) If you specified a suitable frame, dwell time when you converted the document into a movie (say one frame per second), you can use this command for hands-off browsing. If the image size is large, select the 'Play Every Frame' command on this menu before choosing 'Play' to suppress frame skipping, ordinarily invoked to maintain synchronization with a sound track. The mouse equivalent for this command is the triangular icon at the lower-left corner of the QT window.

Stop (⌘ .) Use Stop to interrupt the playback. Alternatively, click the stop icon on the playbar at the base of the QT window.

Step Backward (⌘ -) & **Step Forward** (⌘ =) Step Backward and Step Forward move you to the next lower/higher numbered frame. The keyboard equivalents are command minus and command equals. The icon equivalents are at the right end of the scroll bar.

Rewind (⌘ 0) This command displays the first frame of the document.

Movie	
Play	⌘
Stop	⌘.
Step Backward	⌘-
Step Forward	⌘=
Rewind	⌘0
<hr/>	
Repeat	Play repeatedly
Repeat Back & Forth	Play forward & backward repeatedly
<hr/>	
Play Every Frame	Play asynchronously
<hr/>	
✓Prefer Color Screen	Multiple screen choices
Prefer Largest Screen	

Figure 12 Movie Menu

Repeat and **Repeat Back & Forth** Repeat causes the movie to play repeatedly from beginning to end; Repeat Back & Forth plays the movie from beginning to end and then in reverse order from end to beginning before repeating the cycle. These commands are mostly of interest for free-running, table top displays and for animation sequences.

Play Every Frame When using the Play command to browse a document consisting of large images, this command assures that you skip no frames. Otherwise, the QuickTime system skips frames as necessary to maintain a constant frame rate.

Prefer Color Screen & Prefer Largest Screen When using a Macintosh which has multiple monitors, these commands determine where DV displays the document image.

Size Menu

Ordinarily you view Documents at full size, the default. Sometimes a larger or smaller image is useful (Figure 13).

Full Screen & Fit In Window These commands size the image width and height to match the full screen or the document window, respectively. DV does not preserve the width-to-height ratio with these two commands or when you drag the Grow Box to obtain an arbitrary window size.

200%, 100%, 75%, & 50% The four standard sizes do preserve the original width-to-height ratio. Magnified or minified images sometimes reveal additional insight but cannot display details not included within the source image.

Size	
Full Screen Fit In Window	Enlarge image without preserving width to height ratio
200% 100% 75% 50%	Adjust image size, but preserve width-to-height ratio

Figure 13 Size Menu

Bookmark Menu

You can scroll to any frame using the controls shown in Figure 11. However, more precise frame location is possible. You can assign any frame to a representative, or Poster Frame, for display at startup. You can also identify any number of other frames by name and, subsequently, go immediately to any of them when you select the Bookmark name from the menu. These bookmarks serve the role of a table of contents. To go immediately to a bookmark frame, select its name from the lower portion of the Bookmarks menu (Figure 14).

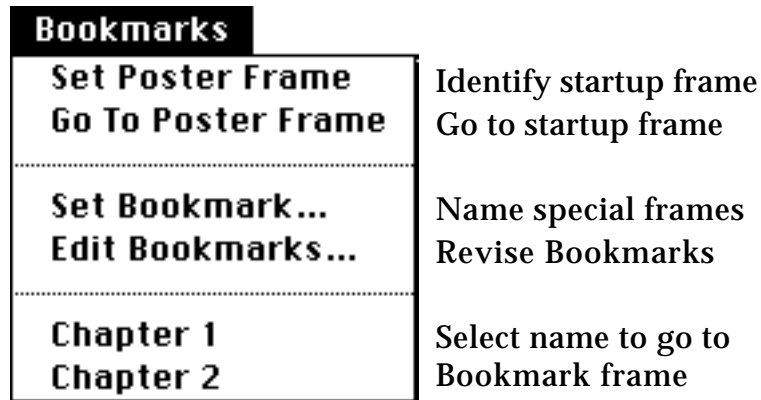


Figure 14 Bookmark menu

Set Poster Frame To designate a startup frame, scroll to the desired frame, use the Set Poster Frame command and save the file.

Go To Poster Frame To scroll to the startup frame, use the Go To Poster Frame command.

Set Bookmark... This command is a generalization of the Poster Frame command—you can have any number of bookmarks. To designate a bookmark frame, scroll to the desired frame, use this command, and supply a name (Figure 15).

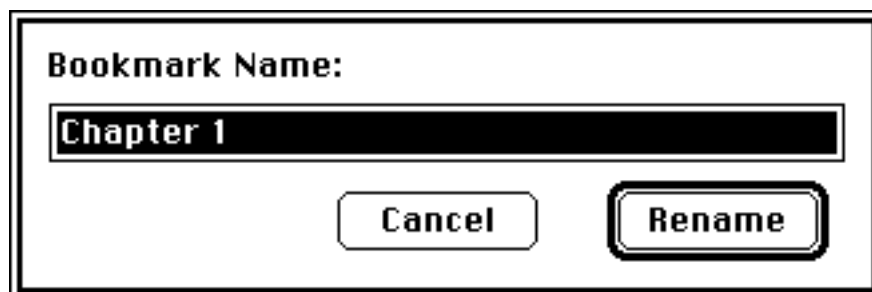


Figure 15 Set Bookmark Dialog

Edit Bookmark... The default ordering of the list of bookmarks on the Bookmark menu (Figure 14) is the order in which you created them. Use this command to remove, edit, or rearrange the bookmarks (Figure 16).

- To delete a bookmark, click on its name to select it and then click the delete button.
- To rename a bookmark, click on its name to select it and then click the rename button and respond to the dialog.
- To alphabetize the bookmarks, click the sort button.
- To manually assign an order, e.g., to match the order of the frames, drag the names into the desired sequence.

Note: To preserve the bookmarks for future sessions, you must save the file (Figure 5).

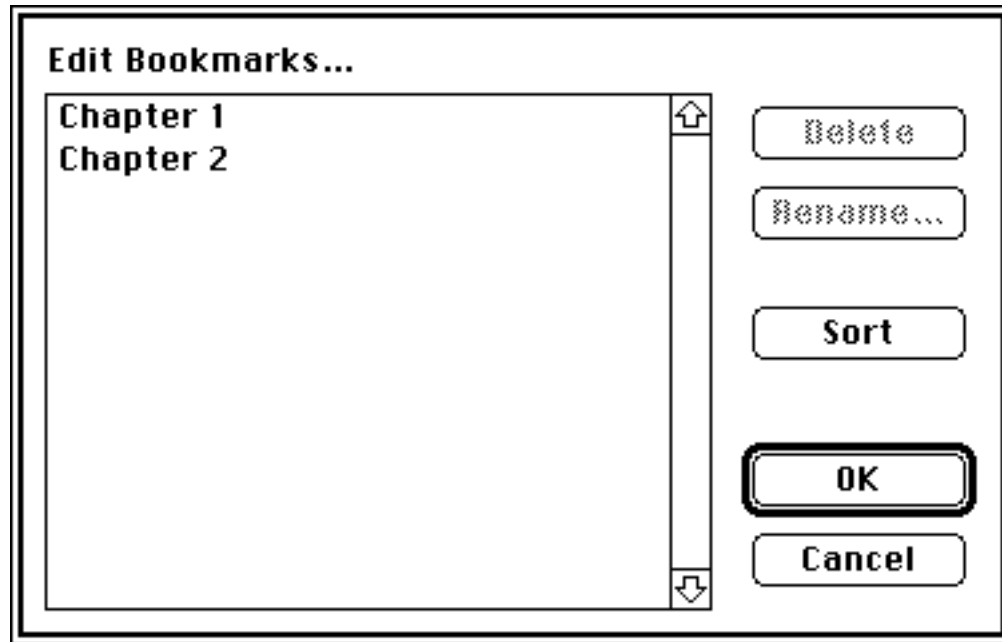


Figure 16 Edit Bookmark Dialog

Windows Menu

To bring an open window to the foreground, thereby making it the active window, either click on a visible portion of the window, or select the window by name from the Windows menu list. The Shortcuts window lists the numerous keyboard commands for controlling the display (Figure 18). The lower portion of the menu lists all open files. Select one by name to make it the active window.

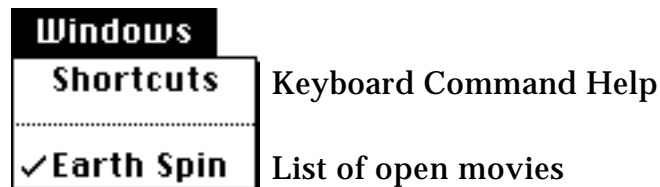


Figure 17 Windows Menu

Shortcuts: You can navigate through a DV document using only the keyboard. The twelve commands are tabulated in Figure 18. Use the page up, page down, home, and end keys on the expanded keyboard to scroll the document while you read, moving in large increments as you snake through a document. On a standard keyboard without these special keys, press the command-option keys and up or down arrow to scroll up or down a window height.

Note: Setting the caps lock key is equivalent to simultaneously pressing the command and option keys. Pressing Command-option and the left or right arrow, scrolls the screen left or right one window width. Without the Command-option modifier keys, the left, right, up, and down arrow keys set a movie back one frame (⌘ -), set it forward one frame (⌘ =), rewind it (⌘ 0), and toggle between play or stop (⌘ spacebar and ⌘ .), respectively.

The arrow keys in combination with the command (⌘) key perform the function of the four screen scrolling icons. The left and right arrow keys used in combination with the option key scroll to the bottom of the previous frame or to the top of the next frame.

Shortcuts			
	command	option	function
page up			scroll up one window height
page down			scroll down one window height
home			scroll to top of page
end			scroll to bottom of page
←	• •	• •	step backward one frame (same as ⌘-) same as above and scroll to bottom of page scroll left (same as left arrow of horizontal scroll bar) scroll left one window width
→	• •	• •	step forward one frame (same as ⌘=) same as above and scroll to top of page scroll right (same as right arrow of horizontal scroll bar) scroll right one window width
↑	• •	• •	rewind movie (same as ⌘0) scroll up (same as up arrow of vertical scroll bar) scroll up one window height (same as page up)
↓	• •	• •	play/stop (same as ⌘<spacebar> and ⌘.) scroll down (same as down arrow of vertical scroll bar) scroll down one window height (same as page down)

The caps lock key is the same as holding down the *command* and *option* keys.

Figure 18 Keyboard Command Shortcuts