

Object **DANCER**™

**ANIMATE TYPE, GRAPHICS, VIDEO, SOUND
AND MUSIC WITH PINPOINT ACCURACY.**

Reference Manual



ObjectDANCER:

A dream of Joëlle de La Casinière

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Contents

Chapter 1 • Curtain Up	1
Key Features	1
Extensive File Format Support	2
Text Decomposition	3
Time Alignment	3
Direct Audio CD Import	4
Independent Libraries	4
Unlimited Undos/Redos	4
Paste Special	5
Speed Control	5
Synchronization Markers	5
Systems Ready?	5
Configuring Your PowerPC	6
RAM	7
Hard Drive	8
Sound Manager	8
File Sharing	9
QuickDraw GX or GXGraphics INIT ?	9
QuickTime	10
CD-ROM Drive	10
Monitors	11
External Stereo Speakers or Headphones	11
Installation	11
Opening Scenes	12
Your First Animation in 6 Easy Step	13
Chapter 2 • ObjectDancer Basics	17
Current Time and the Red Current Time Line	17
Compo and Synchro Windows	18
Menus	20

Choosing Preferences .....	.21
Input Preferences .....	.21
General Preferences .....	.23
Output Preferences .....	.24
Designing Your Workspace .....	.25
Saving Commands .....	.26
Previewing .....	.27
Chapter 3 • Pre-Production	29
Main Project Windows .....	.29
Recapping .....	.29
Detailed Project Windows .....	.30
Project Window Components .....	.32
The Expanded Synchro Window .....	.38
Creating Dances/Keyframes .....	.39
Keeping Track of Project Windows .....	.40
The Hub and Its Components .....	.40
Object Attributes Palette .....	.42
Text Attributes Palette .....	.42
Timing Info Palette .....	.43
Library Window .....	.43
Library Entry Types .....	.44
Identifying Different Library Entries in the Library Window .....	.45
Creating Library Catalogs .....	.45
Library Management Commands .....	.46
Adding Library Entries to a Library .....	.47
Embedded or Linked Library Entries .....	.48
Importing Library Entries into your Project .....	.48
Renaming Library Entries .....	.49
Deleting Library Entries .....	.49
Show Library .....	.50
Toolbox Palette .....	.50
Show Tools .....	.52

A Closer Look at Object Attributes	53
Common Attributes	53
Text Object Attributes	58
Audio Object Attributes	60
Chapter 4 • Basic Choreography	61
Importing Objects	61
Drag and Drop	63
Copy and Paste	64
Import Command	64
Editing Commands	65
Controlling Object Stacking Order	67
Group/Ungroup	67
Center Anchor Point	68
Modifying Text	68
Changing The Background Color	69
Chapter 5 • Fine Tuning	73
Editing the Curve with Bezier Points	73
Adding Bezier Curves	74
Manipulating Bezier Points and Curves	74
Deleting a Bezier Point	76
Converting a Bezier Curve to an Angle	76
Splitting a Bezier Tangent	77
Converting a Bezier Angle to a Bezier Curve	77
Paste Special	78
Text Decompose	80
More on Keyframes	81
Moving Keyframes	81
Keyframes Outside the Object Lifespan	82

Duplicating Keyframes . . . . .	.82
Keyframes Locked or Adjust Left or Right . . . . .	.82
Speed between Keyframes . . . . .	.83
Controlling the Speed . . . . .	.84
Time Alignment . . . . .	.85
Object Lifespans Beyond the Synchro Window Viewing Area . . . . .	.88
Visual Alignment . . . . .	.88
Audio Synchronization . . . . .	.90
Digital Audio or MIDI files . . . . .	.90
Audio Marking Windows . . . . .	.92
Chapter 6 • Final Steps	99
Options... . . . .	.99
QT Compression . . . . .	.100
GIF Options . . . . .	.104
JAVA Options . . . . .	.105
Audio Settings . . . . .	.106
Make QT Movie . . . . .	.108
Make QT Special . . . . .	.108
Sprite Movie . . . . .	.108
GX Movie . . . . .	.108
Make Animated GIF... . . . .	.109
Make Java Animation... . . . .	.109
Printing . . . . .	.109
Appendix A • Keystroke Commands	113
Compo Window . . . . .	.113
Synchro Window . . . . .	.114
Timeline-Related . . . . .	.115

Tool Palette	115
Library	116
Sound Window	116
Miscellaneous	117
Index	119

Chapter 1 ●

Curtain Up

So here we are, raising the curtain to you and your new animation tool, ObjectDANCER™, by PaceWorks. ObjectDANCER, a multimedia authoring tool, offers the perfect balance between innovative, powerful object-oriented technology and the preservation of flow of the creative process. Any creative designer or multimedia developer who professionally builds animations—ranging from commercials, CD titles, on-line help or Internet-based animations, to lengthy marketing videos—knows the value of having rich tools to ease the tedious challenge of bringing their creativity to life. ObjectDANCER was developed to ease such a challenge, to close the gap left open by other authoring tools that lack the needed precise manipulative control over graphical objects, extensive typography, and audio synchronization.

Key Features

ObjectDANCER is an author-oriented tool that includes a number of key features to give you added control while building animated presentations. These key features are summarized in the following sections so you are familiar with their availability before you get to deep into your learning. You can therefore prepare for your animation projects properly. Don't worry if you don't fully understand each of these summarized features at this point—we don't yet expect you to. As you delve deeper into this manual, however, you will get full explanations for practical application of these features within your projects:

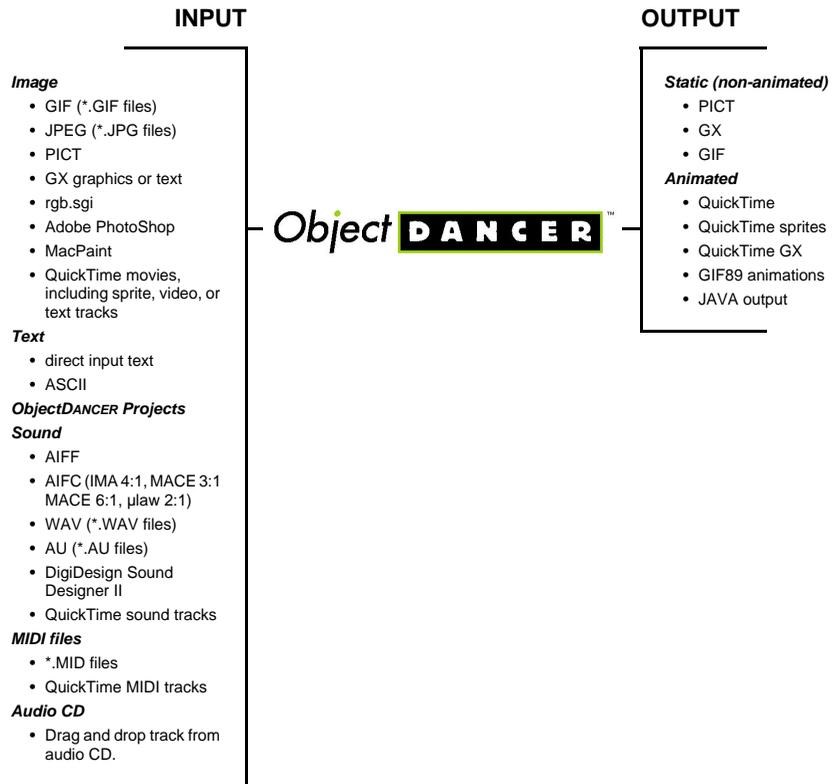
- extensive file format support
- text decomposition
- time alignment
- direct audio CD import
- independent libraries
- unlimited undos/redos
- paste special
- speed control
- synchronization markers

Extensive File Format Support

ObjectDANCER supports the most popular content creation software applications, giving you the flexibility to create complex and impressive presentations. Files (objects) created in these applications can be dragged and dropped directly into an ObjectDANCER project window, without even opening the file. In addition, you can directly input text into an ObjectDANCER project.

ObjectDANCER's output mechanisms also offer you choices of formats to output final projects. QuickTime movies can be created and compressed using standard QuickTime compressor algorithms. Projects can be outputted as Sprite or GX Quicktime movies. GIF89 animations can be read by Web browsers, and when JAVA animations are output, the project is converted to a set of JAVA applets, and an HTML file. Finally, a screenshot of any project at any point during its development can be printed or saved.

The following diagram summarizes ObjectDANCER's supported file formats:



Text Decomposition

This feature allows you to break down an imported text object into smaller objects of the whole text object, such as letters, or words. After a text object is “decomposed”, you can then animate and synchronize the smaller text objects individually, and differently, as desired, from one another.

Time Alignment

With time alignment, you can select a group of objects within your project, and align the start and stop sequences, and then specify timing increments of the objects relative to one another. With this, increments between two or more dances

within an animation can be aligned to have equal increments between their starts and stops, or the objects can be aligned to all start or stop at the same time.

One example of when you might use the **Time Alignment...** command would be if you wanted to align a group of objects to move alike, and with the movements smoothly starting one right after another, as opposed to them all moving simultaneously, or sporadically. Through this feature, you have precise control of the timing of objects movements and how they related to one another.

Direct Audio CD Import

ObjectDANCER allows you to directly import any previously recorded digital audio file, and specify the quality and compression of the audio to be played back within your finished animation. Before creating a movie, you'll select a desired sample rate, sample size and either mono or stereo channels for the audio's quality. In addition, if you have QuickTime 2.5 (or later) installed, you can select one of the following audio compression algorithms: IMA 4:1, MACE 3:1, MACE 6:1, or μ law 2:1.

Independent Libraries

The libraries created within ObjectDANCER projects are specifically designed to be project independent, meaning that the libraries or library entries can be easily interchanged between different projects, or even different authors. This feature is especially useful when creating multiple projects simultaneously and when certain objects are used multiple times within different project files. Since the libraries are not project linked, they can be easily shared with co-workers while working on multi-faceted projects.

Unlimited Undos/Redos

You have unlimited "Undo/Redo" capabilities while using ObjectDANCER. Given the complexity of many multimedia projects, this feature becomes very handy at times when you realize you that you made a critical error just a few maneuvers back, and would otherwise have to restart you project if you were not able to undo your changes more than one level. An adjustable "Undo level" can be set within preferences.

Paste Special

With Paste Special, you are able to paste only a chosen attribute(s) of a particular object to another object or objects rather than manually updating these objects with a particular attribute(s) over and over again. Paste Special allows you to selectively choose which animated attributes (dances) should be pasted to the destination object(s), and which attributes should not.

One example of how you might use this feature is if you had an object that moved in a particular way that you especially liked and you wanted another object to replicate the exact movement. To do this, you would either have to recreate the movements manually on the second object, or through using the **Paste Special...** command, you could copy only the specific movements to the new object while leaving all other attributes unchanged and untouched.

Speed Control

You can control the speed between the changes of an object's attribute over time through manipulating bezier curves (curved object paths) along a graphical slope that indicates the speed of a change. When you flatten the slope by dragging on the bezier curve, the speed between the attribute's changes are slowed; steeper slopes indicate quick changes.

Synchronization Markers

Synchronization markers within both the Synchro and Audio Windows allows you to mark significant changes within an animation "on-the-fly" so that movements and audio fluctuations can be easily identified for synchronizing with each other later.

Systems Ready?

Before using ObjectDANCER, you'll need to account for a few system configuration considerations to make sure that your Macintosh is in good shape, and ready to take on the intense system requirements inherent with the word "multimedia".

Following is a summary of configuration requirements. Read the sub-sections that follow for further details about each requirement.

- ✓ An Apple Macintosh™ PowerPC, any model (or PowerPC clones), with a minimum of 5 megabytes (MB) of application RAM (8 MB or more recommended).
- ✓ *Apple System Software 7.5* (or later) installed, which includes the following necessary extensions: *ColorSync™* system extension and control panel, *Sound Manager 3.2* (or later) system extension, and *Sound* control panel.
- ✓ *Apple QuickDraw GX* software installed, which comes packaged with System Software 7.5 or later (although QuickDraw GX is not automatically installed),
OR
Apple's *GXGraphics INIT* system extension, a much lighter solution (available for download at <http://www.paceworks.com>).
- ✓ *QuickTime™* 2.1 (or later—version 2.5 recommended), which includes: *QuickTime™* system extension, *QuickTime™ PowerPlug* system extension, *QuickTime™ Musical Instruments* system extension.

In addition, PaceWorks recommends the following hardware, although it is not required:

- ✓ CD-ROM drive
- ✓ 17" or larger monitor
- ✓ external speakers

Configuring Your PowerPC

ObjectDANCER was developed on and for a PowerPC (either Apple-brand or other brands). Although the higher-end PowerPCs offer superior speed, higher disk space, and larger RAM expandability capabilities, *any* PowerPC can run ObjectDANCER.

ColorSync™ System Extension, ColorSync™ Control Panel These files are included/installed with System Software 7.5 (or later). They provide the color reproduction and color management capabilities that high-end multimedia hardware and software requires for color intensive printing and video projects.

RAM

ObjectDANCER requires a minimum of 5 MB of application RAM to run (only if virtual memory is on), although allocating more memory is better. For better reliability, we recommend that you allocate 9 MB of RAM or more to ObjectDANCER, depending on how much available RAM you have.

To allocate more memory, select the ObjectDANCER application file, and then select **Get Info** from the *Finder* menu. Ensure that the “Minimum size:” field has 5000K or more entered; input 9000K or more in the “Preferred size:” field.



Note

If your application was already open on your system, you cannot make memory allocation adjustments. Close the application first, and then try.

Memory Control Panel By adjusting the memory control panel’s settings appropriately, you can significantly improve the performance of how ObjectDANCER (or other applications, for that matter) works on your Macintosh. The following bullets include some suggestions.

- *Disk Cache* - This setting sets aside RAM for quick retrieval of frequently accessed data on your hard drive. This setting should be kept anywhere between 128K and 1MB, depending on available memory.
- *Modern Memory Manager* - The default setting is always on. If you turn Modern Memory Manager off, your system will run in a non-PowerPC emulation mode, and the performance of your PowerPC will be reduced anywhere from 20 to 200 percent, depending on the application. Your PowerPC will still run with Modern Memory Manager set off, albeit without the *power* inherent to a PowerPC.
- *Virtual Memory* - This setting treats part of your hard drive as extra RAM, which can often be helpful. By setting virtual memory to 1 MB or more, you can allow a drastic reduction in RAM requirements for running ObjectDANCER and other PowerPC applications. If you only have 5 MB of RAM allocated to ObjectDANCER, you *must* have virtual memory on and set it to at least 1 MB. Note that with limited RAM, however, performance issues may crop up.

If you have plenty of RAM, turn virtual memory off. QuickTime (which you’ll read more about in a few pages) sometimes does not work well with

virtual memory on, which would ultimately slow down your efforts in ObjectDANCER.

- *RAM Disk* - Turn RAM disk off. This setting turns part of your RAM into a virtual fast hard disk—basically the opposite of virtual memory. Unless you have tons of extra RAM on your system, which is *not* usually the case for most of us, leave RAM disk off so more built-in RAM can be dedicated to ObjectDANCER or other applications.

Hard Drive

Having a dedicated clean, fast, *and* roomy hard drive is certainly the most ideal of hard drive situations, although understandably, perhaps not the most practical requirement for all users. Therefore, we encourage you to assimilate this ideal as best possible in other ways:

- clean up your existing hard drive
- optimize your hard drive
- if you have a large enough drive, partition a part of your hard drive for ObjectDANCER projects and work (certainly not mandatory)

There are a number of good hard drive diagnostics and repair, optimization, and partitioning tools out in the market or on the Internet these days to make these tasks simpler. We firmly recommend that you take advantage of these tools *before* working with ObjectDANCER (or other applications), so as to avoid unexpected hard drive problems later.

Sound Manager

The *Sound Manager 3.2* (or later) system extension and the *Sound* control panel¹ should be installed on your system (included with the System Software 7.5 [or later] installed files). Sound Manager is Apple's digital audio software that allows multimedia applications to play and record sounds by using an internal sound chip that supports 16-bit CD-quality audio.

1. With System Software 7.5.3 (or later), this control panel's capabilities may be included under a *Monitors & Sound* control panel instead, depending on your system type. In this case, you will also have a *Sound* control panel, but with reduced options since they are included under the *Monitors & Sound* control panel.

File Sharing

As a Macintosh user running System Software 7.5 (or later) on a network, you have undoubtedly already discovered the convenient File Sharing feature. While this feature is definitely beneficial during many situations, having File Sharing “on” while running ObjectDANCER can cause a significant decrease in performance.

QuickDraw GX or GXGraphics INIT ?

ObjectDANCER utilizes QuickDraw GX features, a technology developed by Apple, offering advanced printing, graphics, typography, and color capabilities that are often required by multimedia applications. In the typography area, features such as kerning, ligatures, tracking, transfer ink modes, interlettering, animated multiple master font support², and special GX font handling become critical to experiencing some of ObjectDANCER’s full potential. In terms of graphics, ObjectDANCER offers sophisticated color-modeling and translucency control, and extended image quality and rendering performance control, among other image features contributed by QuickDraw GX. Given all this, obviously, ObjectDANCER relies heavily upon the capabilities of QuickDraw GX technologies.

There are two different ways to enable QuickDraw GX capabilities on your system. They are:

- install the GXGraphics INIT system extension, or
- install Quickdraw GX.

To install either option, you may access and download the files through the PaceWorks’ website at <http://www.paceworks.com>. QuickDraw GX files are also included with the System Software 7.5 (or later) installation files.

The GXGraphics INIT, version 1.1.3, is a system extension that adds GX graphics capabilities to the your system without changing any printing or installed fonts. GX typographic capabilities (specifically, enabling Postscript Type 1 fonts) are not included with the GXGraphics INIT, however (future releases of the INIT are expected to include the GX typography capabilities as well). Since the GXGraphics INIT extension does not change any other resources in your system,

2. Multiple font master is an Adobe font standard. As a QuickDraw GX font, it can support axis variation. ObjectDANCER allows you to access and edit GX font features in addition to the Adobe multiple font master features.

it can easily be enabled or disabled through your system's Extension's Manager, and then restarting your system.

In order to use PostScript Type 1 fonts in your project or to print, you need to install QuickDraw GX because the fonts must be converted, or “enabled”, to the GX font format. When you install QuickDraw GX, all PostScript Type 1 fonts found in your Fonts folder are enabled by the GX Installer. Any fonts installed after QuickDraw GX is installed, however, must be enabled using Adobe's *Type 1 Enabler*, version 2.2 (or later).³

QuickTime

QuickTime™ is a software-based architecture developed by Apple that allows a developer to easily integrate graphics, sound, text, video, music, and animation into a standard multimedia format: a QuickTime movie file. ObjectDANCER takes advantage of the QuickTime architecture, allowing a developer to easily create, view, edit, synthesize, and compress simple or advanced animations alike.

With System Software 7.5 (or later), the QuickTime™ 2.1 (or later) extension should already be installed on your system. Included with the QuickTime installation is *QuickTime™ Musical Instruments*, a system extension that allows QuickTime movies to play back a provided set of musical instruments called MIDI sounds. ObjectDANCER supports MIDI files, so having the QuickTime Musical Instruments system extension on your system is important. A *QuickTime™ PowerPlug* system extension, which improves compression performance on PowerPCs using QuickTime 2.1 or later, is also installed with System Software 7.5 (or later).

CD-ROM Drive

Most desktop PowerPCs come equipped with an installed CD-ROM drive, so in most cases, this recommended requirement is easy. It is not critical that you have a CD-ROM, unless you want to import objects from a CD-ROM to use in your ObjectDANCER projects.

3. Refer to QuickDraw GX's and Adobe's Type 1 Enabler's “Read Me” files included with the software for more information regarding the compatibility issues associated with Type 1 fonts and QuickDraw GX.

Monitors

When creating multimedia productions, it is best to have as large a monitor as possible. Although, you can use any sized monitor to work with ObjectDANCER.

Many designers often attach more than one monitor to their systems so they can test their multimedia project on one screen, and launch applications to create components of the project on another screen. Though this approach works well, is efficient, and is certainly a nice enhancement to your system setup, only one monitor is *required* to run ObjectDANCER.

Monitors Control Panel Set the color level setting within your *Monitors* control panel⁴ at the highest color level setting available. If there is ever a time for having high quality color on your monitor, designing multimedia is that time.

External Stereo Speakers or Headphones

Since audio plays such a critical and integral role in multimedia productions, and specifically, when using the ObjectDANCER authoring tool, investing in quality external speakers or headphones to play back your project's audio files during development (and after) seems well worth the money spent. After installing your external stereo speakers (or headphones), be sure to adjust the *Sound* control panel to allow "sound out". Otherwise, even though you have your speakers may be physically connected, sound will continue to be outputted through the internal computer speakers.

Having external stereo speakers or headphones is a recommendation, not a requirement. If you do not have either of these, you can still run ObjectDANCER without them.

Installation

To install the PaceWorks' ObjectDANCER application, perform the following steps:

1. Double-click on the "ObjectDANCER Installer" icon. A dialog box appears asking you whether you want to install a demo or full version of the software.

4. With System Software 7.5.3 (or later), this control panel's capabilities may also be included under a *Monitors & Sound* control panel, depending on your system type.

(The Demo version is also full-featured, except that you can't save your project. It is for demo-purposes only.)

2. Select "Demo version" or "Full version", and then click on the "OK" button.
3. Another dialog box appears, where you can specify the location of where you want to install ObjectDANCER on your hard drive. Click on the "Select Folder" button to specify where to install the application file(s) on your hard drive.
4. Click on the "Install" button to proceed with the installation.

The installer checks your system folder to ensure that either the GXGraphics INIT or QuickDraw GX is installed. If neither of these required extensions are installed, the installer prompts you, and installs the GXGraphics INIT.

5. When the installation is complete, a message will appear to indicate that the installation was successful.
6. Restart your computer.

Note that QuickTime must also be installed in order to run ObjectDANCER. Since QuickTime is usually installed on PowerPCs during the System Software installation, it is probably safe to assume that QuickTime is already present on your system. If you find that QuickTime is in fact *not* installed, however, you can install it using the QuickTime Installation files provided on the ObjectDANCER CD-ROM.

Opening Scenes

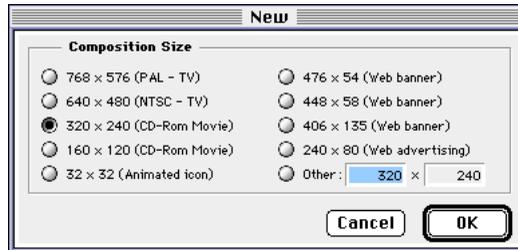
To launch ObjectDANCER, double-click on the application icon. The menu bar in the upper left corner of your screen displays the ObjectDANCER's available menus.

Throughout the rest of this section, you can follow along in the hands-on demo to create your first ObjectDANCER animation. Though this first animation that you will create is very simple and basic, the described steps form a foundation to all other ObjectDANCER maneuvers that you will encounter in creating more complex animations. Therefore, being able to create this basic animation is very important before going any further with ObjectDANCER.

After the demo, we will back up and give you more detail on ObjectDANCER's project windows and *how* you actually created your animation.

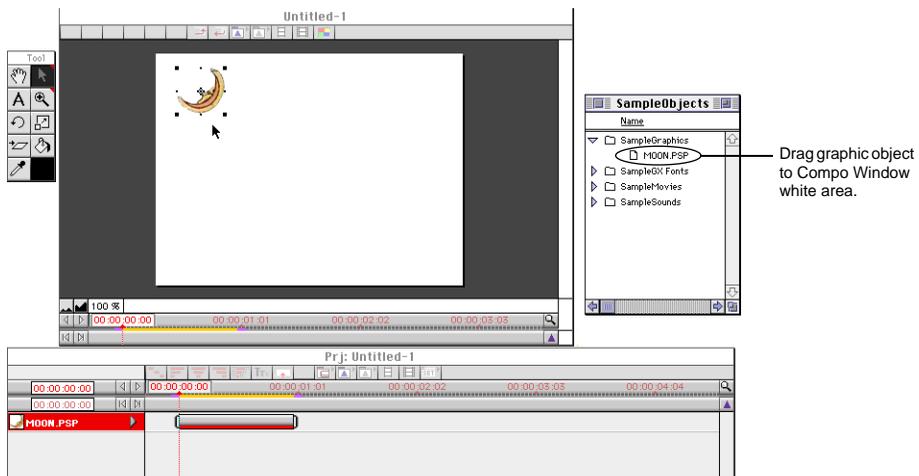
Your First Animation in 6 Easy Step

1 Create New Project and Select Composition Size Open a new project by selecting the **New...** command from the *File Menu* (after launching the ObjectDANCER application). When the “Composition Size” dialog box is displayed, click on “320 x 240”, and then “OK”.



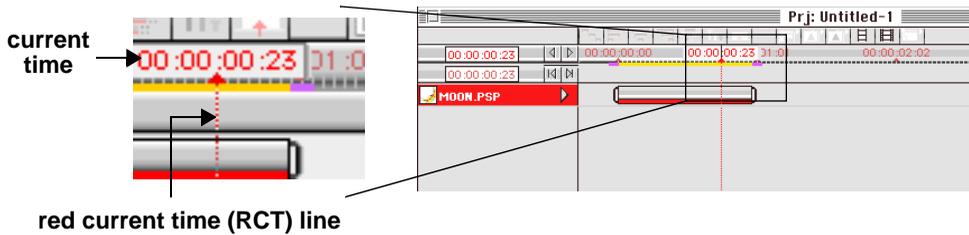
An empty Compo and Synchro Window is displayed on the top and bottom of your screen, respectively.

2 Drag and Drop Object Drag and drop an object, such as a PICT graphic, into the *Compo Window white area*.

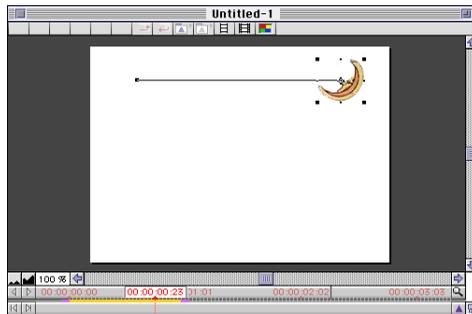


When you import an object into the Compo Window, the same object is reflected in the Synchro Window, as well (and vice versa). These windows are mirrors of each other, essentially, each allowing you to manipulate the objects in different ways.

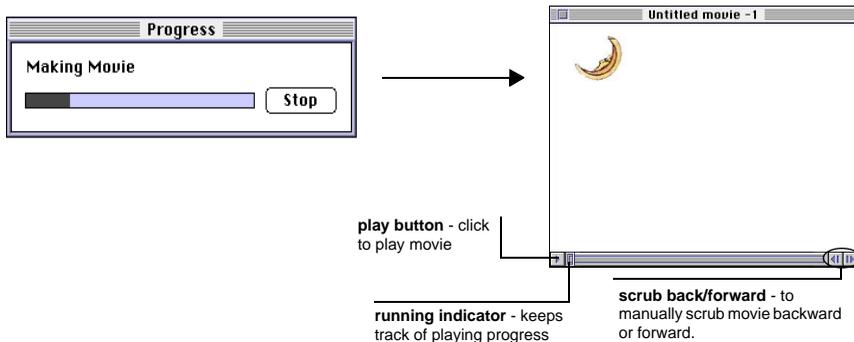
3 Adjust Time Drag the *current time* white highlighted area to the right along the *gray timeline ruler* (keep within the range of the *yellow project output bar*).



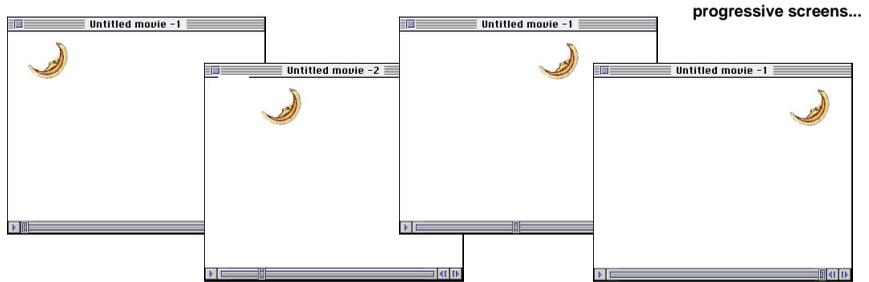
4 Move Object Drag the moon object to the right. A line from the original location to the new location shows the *object's path*.



5 Make Movie Select the **QT Movie** command from the *Output Menu* (or click on the **QT Movie**  smart icon at the top of the Synchro Window). A "Making Movie" progress screen is displayed, and then a small movie window is displayed.



6 Play Movie Click on the *play button*  in the movie window, and your movie is played. The *running indicator* on the bottom scroll bar moves to the right while the movie plays.



And there you have it! You have created your first ObjectDANCER animation. Granted, *this* animation may not be the most exciting animation of all time. Have patience—we We'll get there. The point is that these simple steps form the foundation of all future animation maneuvers that you will create within ObjectDANCER: open new project, import object, move current time, move or change object, move current time, move or change object, move current time, move or change object, and so on.

Chapter 2 ●

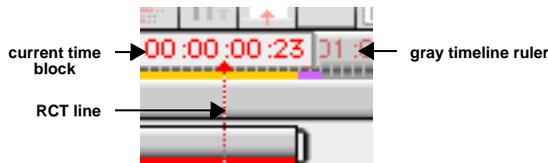
ObjectDANCER Basics

The main premise behind ObjectDANCER is timing. *Everything* you do in ObjectDANCER revolves around timing. You will be specifying over and over exactly when you want something to happen, change, move, etc. within your animation. It is critical to understand the true importance of timing. With this understanding clear in your thoughts, you will be able to learn ObjectDANCER with ease.

Now let's talk about timing a little more specifically, in terms of ObjectDANCER's representations of time within a project: *current time* and *the red current time line*.

Current Time and the Red Current Time Line

The red vertical line in both the Compo and Synchro Windows is known as the *red current time line*, or the *RCT line*. The positioning of this line along the *gray timeline ruler* represents what your project looks like at the specific *current time* represented by the red type against the white highlighted bar.



The positioning of the objects within the Compo Window at any specific current time is what your animation looks like at that specific moment. The RCT line is

simply an extension of the current time, which stretches across the many different object lifespans in the Synchro Window.

When you have created a project with many objects moving and changing at different times, by dragging the current time block or RCT line along the gray timeline ruler, you can see a wireframe preview of your animation in the Compo Window at those specific times—those specific current times. In the early stages of your animation, this wireframe preview may not amount to much. As your project gets more and more complicated, however, this wireframe preview at any point during the creation of you animation is very useful.

Each and every time you want to make an animated change to an object (e.g., a change to location, style, color, size, skew or other object attribute(s)), you must first move the current time block or RCT line to a new current time—the time at which you would like the change to occur. In turn, each of these changes that are made acquires an associated “current time” for exactly when that change is to take place. These times (of the changes) are tracked as *keyframes* in the Synchro Window (discussed in more detail later).

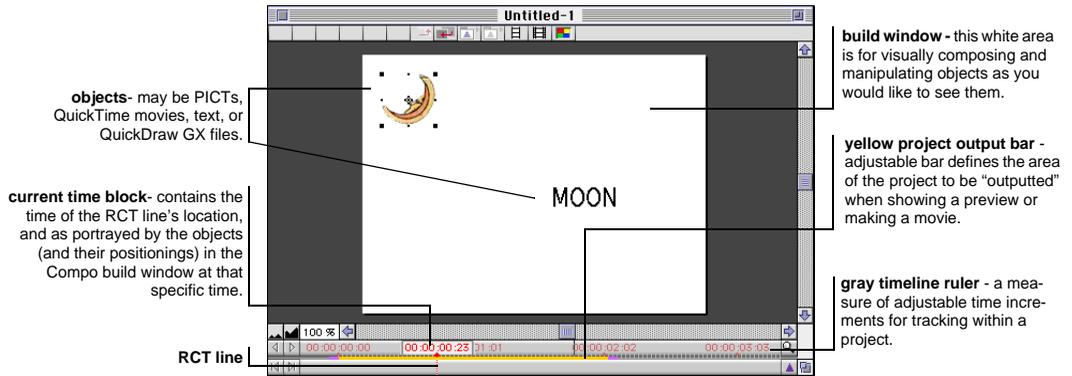
Compo and Synchro Windows

The Compo Window is essentially your visual drawing pad for creating movies. By collecting multiple objects of different types, sizes, and shapes, and then manipulating them in different patterns and schemes over time, you can create animations quickly and easily. In ObjectDANCER, an *object* is any graphic, text, movie, or audio file of a supported format¹ that is brought together in the project windows to be used in the creation of your animation.

Figure 2-1 shows a Compo Window with a graphic and text object already placed inside the Compo build window.

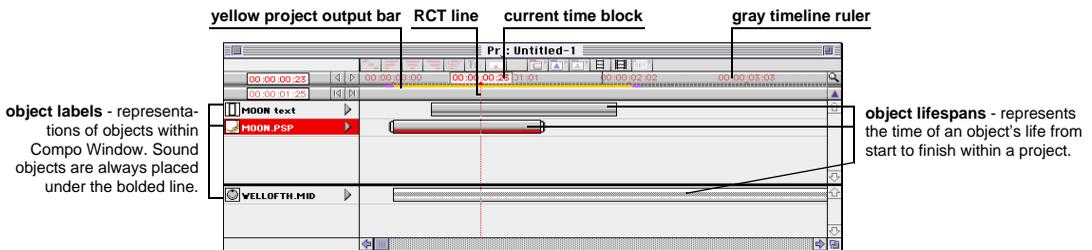
1. Refer to the supported file format list on page 3.

Figure 2-1 Compo Window: An Animated Visual Drawing Pad



All projects have both a Compo Window and a Synchro Window, the former for graphically designing your project, and the latter for precise manipulations of the components that make up your project over time. The Synchro Window is illustrated in Figure 2-2.

Figure 2-2 Synchro Window: Tracking Objects and Object Lifespans



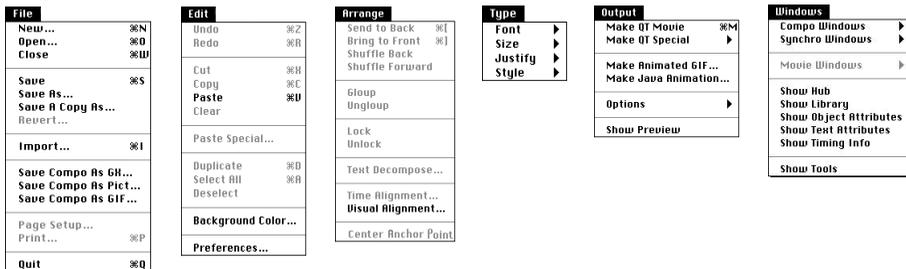
As you may have noticed, many of the elements of the Compo Window are also elements of the Synchro Window. This is because the Compo and Synchro Windows are essentially mirrors of each other, yet each window displays and manipulates objects in different ways. The Synchro Window functions as a tracker of all incorporated changes in the Compo Window, among other things. In turn, all changes made in the Synchro Window are reflected in the Compo Window. Just as objects are dragged and dropped into the Compo Window, objects can be dragged and dropped into the Synchro Window. And, just as you can make changes to an object's movements and attributes in the Compo Window, you can also make changes to an object's movements and attributes in the Synchro Window. Sound objects, however, are only represented in the Synchro Window.

All objects in the Compo Window are represented in the Synchro Window by *object labels* instead of their graphical images. Every object label within the Synchro Window also has an associated *object lifespan*, which shows the time of an object’s life from start to finish within a project. The *current time block*, the *RCT line*, the *gray timeline ruler*, and the *yellow project output bar* are all duplicated elements in both the Compo and Synchro Window, because these components affect the actual trackable time of changes that take place in a project. The *RCT line* along the gray timeline ruler links all the pieces of your animation together over time, allowing you to see what your animation looks like at any specific time. By moving the RCT line slowly along the gray timeline ruler, you can view how your objects are moving, or *dancing*, in the Compo Window (in a wireframe mode).

Menus

ObjectDANCER has been designed using a very familiar menu-driven interface. Upon first opening the application, you are presented with a menu bar of six pull-down menus: *File*, *Edit*, *Arrange*, *Type*, *Output*, and *Windows*. Figure 2-3 illustrates the six menus and each menu’s first level commands.

Figure 2-3 Main Menus



File Menu The *File Menu* contains file commands for creating, opening, closing, saving and printing projects, and for importing files from other applications into the ObjectDANCER workspace. Many of these commands will be fairly obvious to an experienced computer user.

Edit Menu The *Edit Menu* contains commands for undoing and redoing ObjectDANCER commands, and for handling clipboard operations such as cutting, copying, and pasting. This menu also has commands for selecting objects while

composing your project, renaming objects, editing your project's background color, or setting preferences.

Arrange Menu The *Arrange Menu* contains commands used for manipulating the arrangement and alignment of objects within the Compo Window and Synchro Window.

Type Menu The *Type Menu* contains commands for modifying various text attributes such as font, font size, text justification, and text style.

Output Menu The *Output Menu* contains commands for compiling your final project into a finished movie in different movie formats. In addition, an important command on this menu is the **Show Preview** command which allows you to “demo” your movie at interim times during its creation. The preview shown or movie created is dependent upon the duration of the yellow project output bar.

Windows Menu The *Windows Menu* contains commands for displaying accessory tool palettes and windows for precisely manipulating the object attributes within a project(s) that you have open. This menu also has commands for bringing open projects' Compo or Synchro Windows to the forefront of your screen, which becomes especially useful when you have multiple projects open simultaneously and the windows are stacked on top of each other.

Choosing Preferences

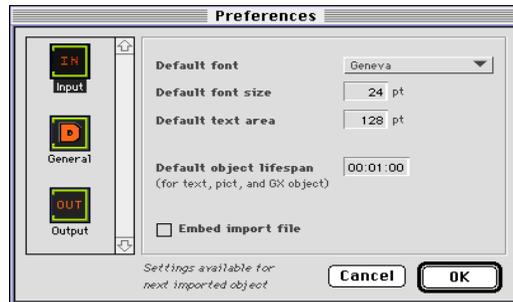
Like many applications, ObjectDANCER has a **Preferences** command where the user can establish preferences for how they would like the application to work within their environment. Since the preference settings often affect all phases of your project work, we are discussing this command early on. Also note that changes to preferences settings are maintained as part of the application's settings, so all open projects are affected by a changed preference setting.

The **Preferences** command can be invoked from the *Edit Menu*, and offers the user three different areas to customly configure: Input, General, and Output.

Input Preferences

The **Input Preferences** dialogue box allows you to set up default settings that are applied when “inputting” objects into your project. By selecting the Input icon from the Preferences dialog box, a window similar to Figure 2-4 is displayed.

Figure 2-4 Input Preferences



Most of these settings are simply defaults, so if you wanted to modify an object's attribute in these default areas *after* inputting an object in your project, you could do so.

Default font This setting defines the default font family for the next imported text object (dragged and dropped, or copy and pasted), and all following text objects until the default is changed. Any text object's font can be changed manually by selecting a different installed font for a selected text object via the *Text Menu*. A text object's font can also be changed via the object's attributes list in an expanded Synchro Window, or in the Text Attributes palette in the Hub.

Default font size This setting defines the default font size for the next imported text object (dragged and dropped, or copy and pasted), and all following text objects until this default is changed. Any text object's font size can be changed manually by selecting a different font size for a selected text object via the *Text Menu*. A text object's font size can also be changed via the object's attributes list in an expanded Synchro Window, or in the Text Attributes palette in the Hub.

Default text area This setting defines the default text area for the next imported text object (dragged and dropped, or copied and pasted), and all following text objects until this default is changed. Any text object's text area can be changed manually by inputting a different text area for a selected text object within the object's attributes list in an expanded Synchro Window, or in the Text Attributes palette in the Hub.

Default object lifespan This setting defines a default object lifespan duration from start to finish within a project. This default applies to the next imported object, and all following, until this default is changed. Any object's lifespan can be changed manually by dragging on either end of a particular object's lifespan bar in the Synchro Window, or in the Timing Info palette in the Hub.

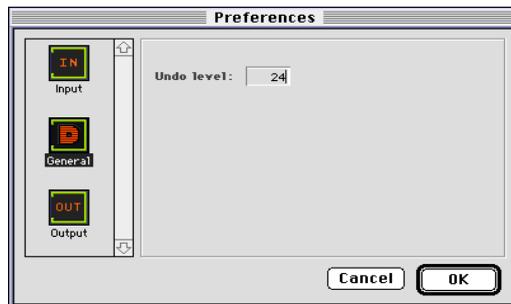
Embed import file By selecting this option, the next imported object will be embedded (as opposed to linked) within the project, and all following imported objects until this default is changed. This setting applies not only to objects imported via the **Import** command, but also any objects that are dragged and dropped, or copied and pasted into the project windows.

The effect of this preference option is *not* adjustable later through editing tools. After an object has been embedded, it cannot be linked later, and vice-versa. For more details on embedding or linking objects, refer to “Embedded or Linked Library Entries” beginning on page 48.

General Preferences

The **General Preferences** dialogue box allows you to specify overall project-affecting settings. By selecting the General icon from the Preferences dialog box, a window similar to Figure 2-5 is displayed.

Figure 2-5 General Preferences



Undo level This special feature allows you to establish an “undo” buffer that stores a fixed number of changes, until reaching the specified value. For example, if the Undo level is set to 24, the 24 most recent changes at any time during a project’s editing process are saved. If you realize that you made a mistake within the last 24 commands or actions, you can undo (⌘U) until you get to the location where you made the error and then fix the error.

 **Note**

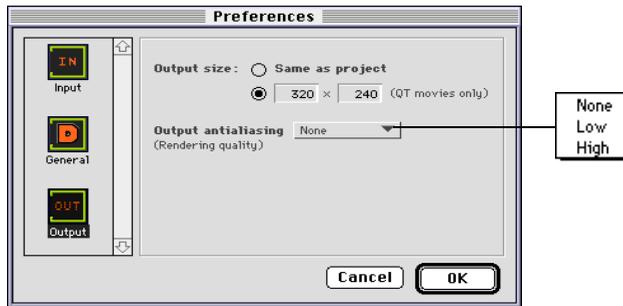
Even though the value that you enter in the Undo level field is unlimited, we recommend that you keep this value reasonable (i.e., less than 30) since it represents a buffer size—the larger your buffer is, the

more memory your buffer consumes, and the less memory is available for ObjectDANCER and other applications.

Output Preferences

The **Output Preferences** window is used for modifying settings related to the output of your project. By selecting the Output icon from the Preferences dialog box, a window similar to Figure 2-6 is displayed.

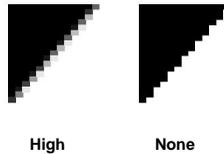
Figure 2-6 Output Preferences



Output size This setting allows you to set a QuickTime window size that may be different than the setting established in the **General** settings, or the same if you check the “Same as project” toggle.

Output antialiasing The setting options for output antialiasing are *None*, *Low*, and *High* which defines the antialiasing rendering quality desired, or specifically, the smoothness of edges between adjacent objects or backgrounds.

Antialiasing is a technique that smooths the jagged edges around objects drawn in your animation so that they blend well with adjacent images or the background. Since antialiasing requires a complete readjustment of pixels, antialiased images usually take longer to render. Therefore, with this Preferences option, you may want to select *None* or *Low* antialiasing resolution while you are rendering your project, and then change the setting to *High* when you are close to completion of your project. Figure 2-7 illustrates antialiasing.

Figure 2-7 Antialiasing

Designing Your Workspace

ObjectDANCER allows you to design your workspace on your screen in the way that best fits your work methods. Some people work with many windows or many projects open simultaneously; others want as few windows open as possible, feeling too cluttered when too many windows are open.

With ObjectDANCER, you have a lot of flexibility in this area because of the way the window positioning preferences were designed. The positioning of the Compo and Synchro Window are specific to each project. You can have multiple projects open with each project's Compo and Synchro Windows specifically positioned, and upon opening and closing the projects, the window positionings are saved. The positioning preferences of the Compo and Synchro Windows are saved as part of each specific project file.

The positioning of the Hub, and any of the tool palettes, such as the Toolbox Palette, the Text Attributes Palette, the Object Attributes Palette, or the Timing Info Palette are all specific to the application (instead of specific projects). Because of this, you will never have more than one set of tool palettes on your screen at any given time, even though you may have more than one set of project windows open (i.e., Compo and Synchro windows). The positioning of these tool palettes are also saved upon closing the application. These positioning preferences are saved within the Preferences file, though, not the specific project files.

As you become more and more familiar with ObjectDANCER, and begin composing multiple projects simultaneously, the positioning of windows will have greater and greater importance as the need for an organized desktop becomes more and more critical. At this early stage, open, close, and move the project windows wherever you want on your desktop; the need for heavy organization is probably not yet prevalent.

All windows, except for the Compo Window, can be closed without quitting a project; if you close the Compo Window, you will be prompted to save your project before closing. If you close a window that you later decide that you would like to reopen, use the commands on the *Windows Menu* to reopen a specific window. This menu's commands allow you to open, or bring to the forefront (of stacked windows) both the project windows and any of tool palettes.

Saving Commands

These saving commands are included at this early stage simply to stress the importance of “saving early and saving often”, a rule to follow not only in multimedia creation, but in all work efforts on the computer. Most of these saving commands (from the *File Menu*) are typical and common, as used in other applications. Unique to ObjectDANCER, however, is the **Save Compo as GX...**, **Save Compo as PICT...**, **Save Compo as GIF...** commands. Following are the save commands described in more detail:

Save... (#S) This command enables you to replace any previously saved version with the same name, but with a more current version. Since this command only saves your work, and does not close the project, you can continue to work within the project. If you are saving the document for the first time, the **Save As...** dialogue box will open instead.

Save As... Allows you to save an untitled project that you have not previously saved, or a copy of a project in a different folder or with a different filename. Type a filename for the document in the highlighted **Save File As:** field, ensure that the correct folder is selected, and then click on **Save**.

Save A Copy As Allows you to make a saved duplicate copy of a specific project under a different filename, or a duplicate copy with the same filename but within a different folder.

Revert Reverts to the last saved version of the project that you are working on. You will be prompted to confirm this command, however, because unsaved changes will otherwise be lost.

Save Compo as GX... Saves the Compo Window at the current time as a GX file that could later be imported into a ObjectDANCER project as a GX object. Bitmap

images can be embedded into a saved GX file. GX files can also be edited by other applications that support GX files.

Save Compo as PICT... Saves Compo Window as a PICT file.

Save Compo as GIF... Saves Compo Window as a GIF file.

Previewing

While creating your animations, you may get to know the **Show Preview** command well, since it allows you to play a wireframe preview, illustrating timing and movement of your objects before compiling a full-blown movie. By using this command regularly, you can quickly and easily see how certain edits work or do not work during your creation phase. To show a preview of your project, there are a few different ways to invoke this command, as follows:

- Select the **Show Preview** command, located on the *Output Menu*.
- Click on one of the Show Preview smart icons  located on both the Compo or Synchro Windows.
- The keystroke command is ⌘ [enter] (the numeric keypad)
- Drag the RCT line (or current time) slowly from left to right along the timeline ruler, and a wireframe preview is displayed at the pace of your drag.

Chapter 3 ●

Pre-Production

Main Project Windows

In the previous chapters, we briefly discussed the Compo and Synchro Windows, giving you an initial feel for the project windows and tools that you will use to design your animations. In this chapter we will discuss these windows in significantly more detail, so you can get up and running with ObjectDANCER as quickly as possible.

Recapping

Let's recap on a few points about the project windows.

- Graphics and text objects can be dragged-and-dropped (imported, or cut and pasted) into the Compo or Synchro Windows.
- ObjectDANCER supported file types are numerous, yet specific. Refer to “Extensive File Format Support” beginning on page 2 for a complete list.
- Changes in any object's position, size, shape, color, rotation or other object dances over time are known as *dances*.
- The red current time line along the gray timeline ruler is what links all the pieces of your animation together over time, allowing you to see what your animation will look like at any specific time—at any specific “current time”.

- By slowly dragging the red current time line or the current time block along the gray timeline ruler, you can view how your objects are moving, or *dancing*, in the Compo Window (in a wireframe mode).
- The yellow project output bar is an adjustable bar that defines the area of the project to be “output” when showing a preview or making a movie.
- All changes to objects reflected in the Compo Window, are also reflected, and changeable, in the Synchro Window.
- *Object labels* and associated *object lifespans* are automatically created in the Synchro Window for every object dragged into the Compo Window (or Synchro Window). Sound objects are also represented in the Synchro Window.

Just as the Compo Window is a drawing pad for your animations, the Synchro Window is a calculating database, listing the many objects of your project with precise dimensions and information about the changes and synchronization between these objects in an animation. The Compo and Synchro Windows are essentially mirrors of each other, each having different ways of displaying and manipulating the project’s objects. The listed objects within the Synchro Window are always in order of their stacked position within the Compo Window, with the first listed object being the front-most object, and the last listed object being at the bottom of the stacked objects.

Detailed Project Windows

Figure 3-1 and Figure 3-2 take a closer look at the Compo and Synchro Windows. Note that the duplicated components within the windows are identical in function, and at any given time, the adjustable ones, such as the current time block, the red current time (RCT) line, or the yellow project output bar, have identical positionings along the gray timeline ruler within each respective window.

Project Window Components

The following sections describe the different components of the Compo and Synchro Windows in detail. When a component is duplicated in both windows, the function is identical between the two windows.

current time block Indicated by a red value within a white highlighted area along the gray timeline ruler, this value indicates the current time of the animation at the specific time and location of the red current time line. The Compo Window illustrates the project at the time indicated in this value. You can change the current time, and thus the red current time line, by simply dragging the white highlight to the left or right as desired.

gray timeline ruler This ruler is a guide for anything that relates to positioning in time in your project. Functionally, this ruler holds the adjustable display units as a guide for time-related components, such as the current time, the cursor position, the red current time line, the yellow project output bar, object lifespans, etc.

cursor position Indicated by a thin black line along the gray timeline ruler, this line moves synchronously with the horizontal movements of the cursor (i.e., the movement of your mouse) within the Synchro Window.

red current time (RCT) line This red vertical line is one of the most integral components of both the Compo and Synchro Windows. Simply put, the positioning of the red current time line along the gray timeline ruler represents what your project looks like at that specific current time. By moving the RCT line along the gray timeline ruler, you can view dancing objects within the project in a wireframe mode.

You can manipulate the RCT line in the following different ways:

- Drag the white current time block along the gray timeline ruler.
- Drag the RCT line along the gray timeline ruler.
- Click your cursor along the gray timeline ruler, and the RCT line snaps to where you click.
- Click on an existing purple timing marker along the gray timeline ruler, and the RCT line snaps to that same location.
- Click on the current time snap buttons to snap the RCT line in small increments to the left or right.

- Click on the first/last frame buttons to snap the RCT line to the beginning or the end of the project.

One of the main functions of the RCT line is to enable changes, movements, alterations, or dances of the project's objects over time. By dragging the RCT line along the gray timeline ruler first (or dragging the current time block), and then changing an object's attribute or position in either the Compo or Synchro Window, object dances are created within your project. These dances are represented as *keyframes* within the Synchro Window. (Refer to page 39 for more details on keyframes.)

By dragging the RCT line slowly along the gray timeline ruler, the Compo Window displays a wireframe preview of your project. In the early stages of developing your animation, this wireframe preview may not amount to much. As your project gets more and more complicated, however, you will be able to see the wireframe movements of the objects as they would appear in your animation. If you find it difficult to drag the RCT line slow enough to catch all the different movements, use the current time snap buttons to maneuver the RCT line incrementally and with more control. (Refer to page 17 for more details on the red current time line.)

yellow project output bar The adjustable yellow project output bar defines the range of the project to be played back when showing a preview or making a movie. Any object dances that are outside the range of the yellow project output bar will not be seen in the preview or movie.

- *To adjust the duration (length) of the yellow project output bar*, drag on the purple IN/OUT adjustment handles to the desired duration. As you drag on the left or right end, the cursor changes to  or , respectively.
- *To adjust the location of the yellow project output bar* (which may be different than the beginning of the gray timeline ruler), drag on the middle of the bar; the cursor will change to  as you drag the bar to a new location along the gray timeline ruler.

IN/OUT adjustment handles These purple handles at the ends of the yellow bar allow you to adjust the duration (length) of the project output bar. By dragging on either handle, you can expand or shorten the range of the bar. The cursor changes to  when dragging the IN handle (left-most handle); the cursor changes to  when dragging the OUT handle (right-most handle). Also see timeline rail.

timeline rail Another quick way to adjust the length of the yellow project output bar is to click on the dark gray timeline rail outside the range of the yellow line; the yellow area/bar will quickly extend to where you clicked along the gray timeline rail.



current time snap buttons By clicking on these buttons, you can move the RCT line incrementally to the left or right, depending on the arrow direction of the button that you click on.



first/last frame buttons By clicking on these buttons, you can move the RCT line to the beginning or end of the project, depending on the arrow direction of the button that you click on.

display mode units These red values along the gray timeline ruler in the Compo and Synchro Windows indicate different frames in your project, and are displayed in a unit notation as specified by the FPS timeline units and set display mode option settings. These settings can be modified through their respective smart icons within the Synchro Window (i.e., ).



timing marker button Through this tool, you can mark significant timing points that you may want to remember in your project, like when you want to align specific audio inflections with particular dances in the project. By clicking on the timing marker button, a purple marker appears in the gray bar under the gray timeline ruler aligned with the RCT line's location. For every place that you create a purple timing marker in the Compo Window, a matching marker in location and numbering also appears in the Synchro Window (or vice-versa).

You can manipulate the purple timing markers, as follows:

- *To make a purple timing marker*, drag the RCT line along the gray timeline ruler to where you want to place a new marker, and then click on the timing marker button.
- *To move a purple timing marker to another location*, drag the marker along the gray bar to a new location. Since the markers are automatically numbered, if you move the first marker to the end of a row of markers, for example, all markers will be renumbered to remain sequential.
- *To add a brief annotation to a purple timing marker*, double-click on a positioned marker. When the highlighted input area appears adjacent to the purple timing marker, type in a brief annotation. To validate (i.e., unhighlight) the annotation entry, click anywhere in the window.

- *To quickly jump the RCT line to a purple timing marker location*, click on any positioned marker, and the RCT line will snap in alignment with the marker.
- *To select a specific purple timing marker among all of the established markers*, hold the mouse button down on the gray bar under the gray timeline ruler. A list of positioned markers will be displayed by number. Select the marker that you want.
- *To delete a positioned purple timing marker*, drag the marker out of the gray bar area and it will disappear. If the RCT line is aligned with the purple marker while you are trying to delete it, drag the RCT line out of the way before trying to delete the marker.

object labels These labels are automatically created in the Synchro Window, reflecting all objects that have been imported into the project (i.e., by either dragging and dropping, copying and pasting, or importing the objects into the Compo or Synchro Windows). Graphics and text object labels are always placed in the upper half of the Synchro Window; sound objects are in the lower half.

By double-clicking on an object label within the Synchro Window, a “Rename...” dialog box appears, allowing you to rename the selected object.

object icons An icon to the right of each graphic or text object label within the Synchro Window is included so you can easily identify which object is which when you need to make modifications to an object(s).

object lifespans Object lifespan bars are associated with every object label within the Synchro Window, indicating the life of an object from start to finish within a project. You can maneuver the object lifespan a few different ways, as follows:

- *To move the whole object lifespan to the left or right* (without expanding or shortening the lifespan duration), select (click on) an object lifespan bar and hold the mouse button down while dragging it to the left or right, as you wish. In doing this, the cursor changes to the open hand  while the cursor is over the selected bar, and then a fist  when you drag the lifespan to the left or right.
- *To expand or shorten the object lifespan*, select (click on) an object lifespan bar, and then hold down the mouse button over one of the lifespan bar's end handles (i.e., IN or OUT handles), drag the bar in or out, as you wish. In doing this, the cursor will change to an open pulling hand  /  while the

cursor is over the selected bar end, and then a pulling fist  /  when you drag the length of the lifespan one way or the other.

keyframe tags Every time an object dance is changed over time within a project, a keyframe is created. For every keyframe created, a keyframe tag is placed along the object lifespan bar. (Refer to page 39 for more details about keyframes.)



incremental window size icons The Compo Window can be enlarged or reduced by clicking on the big and small “mountain” icons to the left of the view setting. The increments to enlarge or reduce the window are fixed incremental values.

view setting The view setting percentile shows you the view size of your workspace window. By clicking on the “mountain” icons (i.e., incremental window size icons) adjacent to the view setting, you can enlarge or reduce the view of your workspace.



timeline zoom tool This tool, which is available in both the Compo or Synchro Window, allows you to zoom the project’s timeline in or out.

- *To zoom out or increase the time scale ratio*, click on the timeline zoom tool. Notice the change in the display mode unit values on the gray timeline ruler; your viewing ratio increased.
- *To zoom in or decrease the time scale ratio*, hold the [option] key down while clicking on the timeline zoom tool; the timeline ratio decreases.

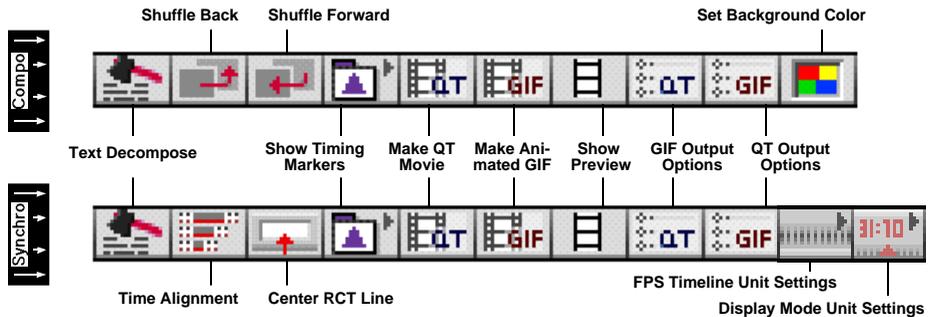
This tool is especially useful in the Synchro window when you have many objects spanning over a long period of time in the project. By zooming out, the object lifespan bars will visibly decrease (even though their lifespan values remain the same), allowing you to view a larger scale of time.



window size box Allows you to adjust your Compo or Synchro Window to be as large or small as you want. By dragging the window size box, your window will stretch to the size you want.

Hold the [option] key down while dragging your window to keep the Compo build window aligned and centered in the Compo Window. This feature is nice when you need to make very precise manipulations.

smart icons Smart icons are short cut buttons used to invoke frequently used editing functions. These icons are displayed in the following icon bars:



Text Decompose - This icon invokes the **Text Decompose...** command from the *Arrange Menu* (Compo Window only).



Shuffle Back - This icon invokes the **Shuffle Back** command from the *Arrange Menu* (Compo Window only).



Shuffle Forward - This icon invokes the **Shuffle Forward** command from the *Arrange Menu* (Compo Window only).



Show Timing Markers - This icon displays a pop-up menu of all positioned *purple* timing markers. Select the marker that you want, and the RCT line snaps to that same location within the Compo and Synchro Window (Compo and Synchro Window).



Make QuickTime Movie - This icon invokes the **QT Movie** command from the *Output Menu* (Compo and Synchro Window).



Make Animated GIF - This icon invokes the **Animated GIF...** command from the *Output Menu* (Compo and Synchro Window).



Show Preview - This icon invokes the **Show Preview** command from the *Output Menu* (Compo and Synchro Window).



Set Background Color - This icon invokes the **Background Color...** command from the *Edit Menu* (Compo Window only).



Time Alignment - This icon invokes the **Time Alignment...** command from the *Arrange Menu* is invoked. (Synchro Window only.)



Center RCT Line - By clicking on this icon, the gray timeline ruler will horizontally snap to the left or right so the RCT line is centered in the Synchro Window (Synchro Window only).



FPS Timeline Unit Settings - This icon displays a pop-up menu where you can set the FPS (frames per second) timeline units from the following options: *Frames 5, 8, 10, 12, 15, 24, 25, 29.97, 30, 50, 59.94, 60*. This setting also resets the FPS settings in the Compo Window to match (Synchro Window only).

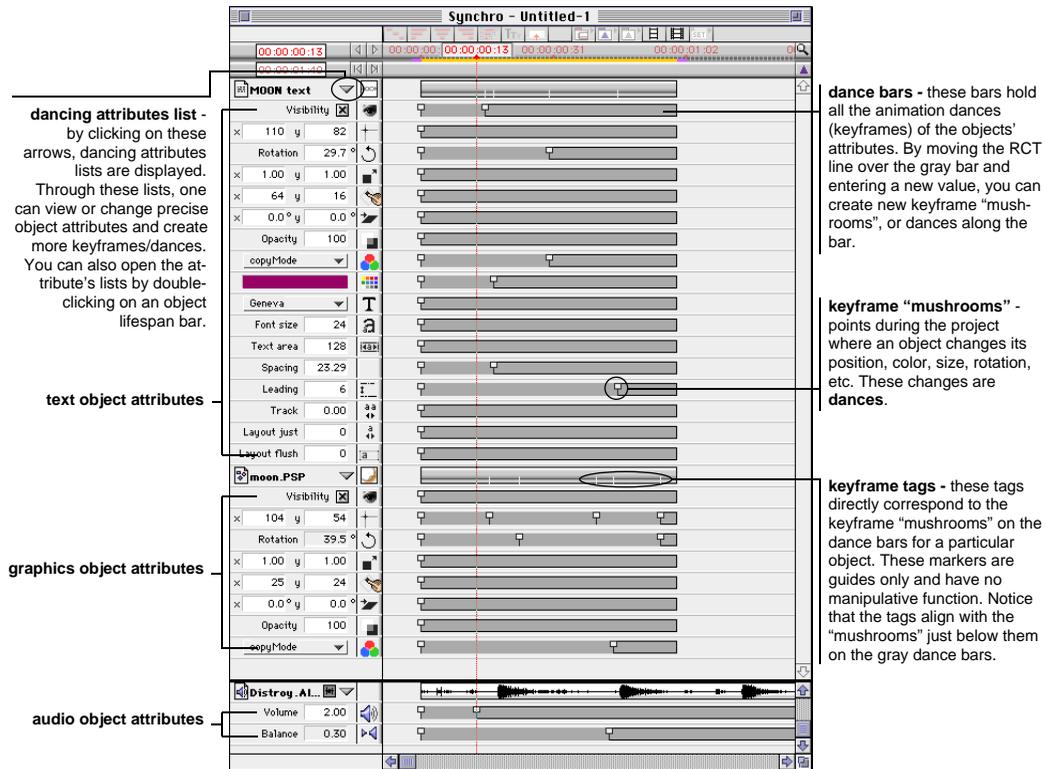


Display Mode Unit Settings - This icon displays a pop-up menu where you can set the display mode units from the following options: *00:00:00:00 mode, 00;00;00;00 mode, Free mode, or Seconds + frames mode*. This setting also resets the display mode unit settings in the Compo Window to match (Synchro Window only).

The Expanded Synchro Window

You can modify objects in the Compo Window, and you can modify objects more precisely through the Synchro Window. By clicking on the *dancing attributes list* arrow ► to the right of any object label, all attributes associated with a particular object are displayed, as illustrated in Figure 3-3.

Figure 3-3 Expanded Synchro Window



Defined, *keyframes* are points when an object's attribute value or setting is fixed at a different value than that same attribute's value at an earlier time during an object's lifespan. These changes are known as *dances* in a project, and are represented by *keyframe "mushrooms"* along an object's *dance bar*. In addition, for every keyframe added to an object, small slits appear on an object's lifespan bar known as *keyframe tags*. These tags are guides only and have no manipulative function, but are useful when trying to do alignments or synchronization of audio later, for example.

Creating Dances/Keyframes

To create a keyframe in the Synchro Window, drag the RCT line along the dance bar to a new current time position. By entering a new value in a selected attribute's input box, and then pressing [return], you will change the selected attribute at the

specified current time, and create a new keyframe mushroom. If changes were previously made in the Compo Window, a keyframe mushroom for every previous change will already be present on the dance bar. Remember, changes made to the Compo Window are immediately tracked within the Synchro Window, and vice versa—changes made in the Synchro Window are reflected immediately in the Compo Window.

For more information about object attributes refer to “A Closer Look at Object Attributes,” beginning on page 53.

For more information about manipulating key frames in your project, refer to “Chapter 5 • Fine Tuning” beginning on page page 73.

Keeping Track of Project Windows

Since you can open and stack as many open project windows as you want on top of each other (assuming you have enough memory), it is not uncommon that a project window gets shuffled below other project windows and you cannot quickly find it when you need it. Because of this, there are two ways to help keep track of your project windows, and bring them to the forefront of your workspace.

- By invoking the **Compo Windows** or **Synchro Windows** commands on the *Windows Menu*, a pull-down menu of all open Compo or Synchro Windows, respectively, is displayed where you can select an open Compo or Synchro Window and bring it to the forefront of your workspace.
- If you have the Compo Window already in the front (or Synchro Window), and want to find its complementary project window, press ⌘ [tab] and the associated complementary window will be brought to the forefront of your workspace.

The Hub and Its Components

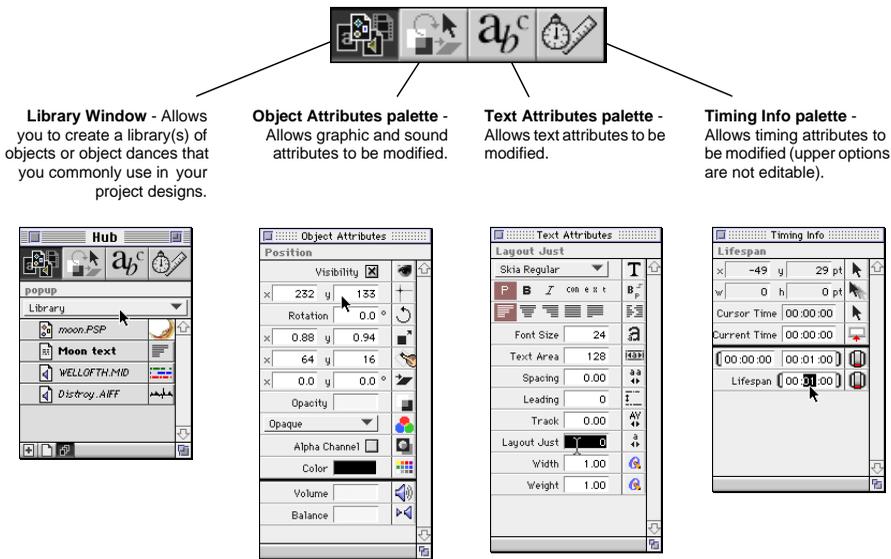
The Hub is a very powerful window where you can organize and store different types of objects or object dances in “libraries”. The Hub also offers alternative editing mechanisms to editing your project from the Compo or Synchro Windows.

The Hub is composed of a Library window, an three extractable editing palettes: an Object Attributes palette, a Text Attributes palette, and a Timing Info palette. By selecting the **Show Hub** command from the *Windows Menu*, you can either

open the Hub window (if not already opened), or bring an already opened Hub window to the forefront of your screen.

Figure 3-4 illustrates the Hub's components.

Figure 3-4 Hub Library Window and Extractable Editing Palettes



The extractable Hub editing palettes can be removed from the Hub window as a separate “palette” on your desktop. Drag a palette icon to your desktop, and the palette is extracted from the Hub window. With this mechanism, you can have all three palettes and the Library’s window open simultaneously while editing projects.

A palette and a window are different in position as well, in that palettes are always in the forefront of your screen, and will not be shifted backward even if they are overlaying an active project area. A window, on the other hand, is only an active window when you are actively working in it; otherwise, it is shifted to the background when you are working on an overlaying window.

You can differentiate a palette from a window by their distinguishing gray header bars. A palette header bar looks like this:  , and a window header bar looks like this:  .

A benefit to editing your project windows through the Hub’s editing palettes instead of the expanded Synchro Window’s dancing attributes lists is that when

these lists are closed, you can view *all* objects' lifespans in your project, one right after another. You can easily see where one object starts and ends, as compared with another object's starting and ending locations. When creating animations, these precise intervals between objects' starts and ends are critical to the overall design of your project. Therefore, with the Hub's editing palettes, you can modify any project objects' attribute(s), while still having all project objects' lifespans in full view (because they are closed).

The actual editing mechanisms in the Hub's editing palettes are basically the same as the editing mechanisms found in the expanded Synchro Window's dancing attributes lists. Keyframes are added to object dance bars by first changing the current time (i.e., dragging the RCT line or current time block), and then modifying specific objects' attributes. Of course, after editing objects through the Synchro Window's dancing attributes lists, getting used to the Hub's editing palettes may take a little getting used to. Nonetheless, ObjectDANCER offers you the choice to work with whichever tools you are most comfortable with.

Object Attributes Palette



The Object Attributes palette offers modifiable fields similar to those found in the dancing attributes lists in the Synchro Window. By first moving the RCT line (or current time block) in the Compo or Synchro Window, and then inputting changed values in any of the palette fields, a keyframe is created on the object's dance bar(s). Functionally, these fields work the same as their matching fields in the Synchro Window.

This palette is extractable from the Hub window to become a stand-alone palette on your desktop. To extract the palette, drag the Object Attributes icon to your desktop; the palette is then displayed separately.

By selecting the **Show Object Attributes** command from the *Windows Menu*, you can open the Object Attributes palette in the Hub if not already opened or existing as a separate palette on your desktop.

Text Attributes Palette



The Text Attributes palette offers modifiable fields similar to those found in the text objects' dancing attributes lists in the Synchro Window. By first moving the RCT line (or current time block) in the Compo or Synchro Window, and then inputting changed values in any of the

palette fields, a keyframe is created on the text object's dance bar(s). This palette's fields will slightly vary between GX-font text objects and non-GX font text objects. Functionally however, these fields work the same as the matching fields in the Synchro Window.

This palette is extractable from the Hub window to become a stand-alone palette on your desktop. To extract the palette, drag the Text Attributes icon to your desktop; the palette is then displayed separately.

By selecting the **Show Text Attributes** command from the *Windows Menu*, you can open the Text Attributes palette in the Hub if not already opened or existing as a separate palette on your desktop.

Timing Info Palette



The Timing Info palette includes fields that show the cursor position, the delta cursor position, the cursor time, and the current time. None of these fields are modifiable directly through input; they are changed through the movements of the cursor or the current time. The fields below the bolded black separator line refer specifically to a selected object: the start/end time (of the object's lifespan) and the total lifespan (the difference between the start and end time).

This palette is extractable from the Hub window to become a stand-alone palette on your desktop. To extract the palette, drag the Timing Info icon to your desktop; the palette is then displayed separately.

By selecting the **Show Timing Info** command from the *Windows Menu*, you can open the Timing Info palette in the Hub if not already opened or existing as a separate palette on your desktop.

Library Window



The Library window has many features and capabilities that are unlike features elsewhere in ObjectDANCER. Libraries store and categorize chosen objects or dances so you can use them later in different projects. For objects that are unchanged since you imported them into the project windows, this type of archive may seem unnecessary. For objects that you have spent a significant amount of time customly shaping and designing their movements and styles, such library archives become quite valuable.

You can have several libraries opened simultaneously, just as you can have more than one project open simultaneously. Since libraries are not project linked, you can copy and paste library entries between different libraries or different projects, or, you can open or close a library regardless of whether its associated project is open or closed. Further, libraries are saved as individual files on your system, so you can share libraries between co-workers working on related projects but on a different system, for example.

More features and details about ObjectDANCER's libraries are covered in the following sections.

Library Entry Types

There are three different entry types that make up libraries in the Library window. It is important to understand the difference between these library entries because the way you use these entries within your project(s) largely depends on the type of entry you are using. The library entry types are:

- raw entries
- DOB (dancing object) entries
- dance(s)-only entries

Raw entries are typically unchanged graphics, text, or audio files that you have stored somewhere on your system. Raw entries can basically come from anywhere in your past work, as long as the format of the entry meets an ObjectDANCER supported format. Examples of raw entries could be a graphic created with a graphics application, or a *Scrapbook* entry, or *Note Pad* entry, or a MIDI sound file. The only constraint on raw entries is that they must be a format supported by ObjectDANCER (refer to "Extensive File Format Support" beginning on page 2 for a complete list).



Note

For files downloaded from the Internet, use a filter program to ensure that the downloaded file(s) is in fact the filetype that you think, and to ensure that the file format has not been corrupted or changed during the download process. There are a number of freeware and shareware filters available on the Internet.

DOB entries, also known as *dancing objects*, are objects that dance or change over time. Some examples of a DOB entry might be a text object that changes color or font, or a graphic object that rotates, or gets larger or smaller, over the course of your project. These entries differ from raw entries in that these objects have already been modified within a project to move and look exactly as you want.

A *dance(s)-only entry* is a specific changed attribute(s) of an object, but without the associated object included within the library entry. You can save a single dance of an object (e.g., a changed rotation), or many dances grouped as one entry (e.g., changed rotation, color, etc.).

Identifying Different Library Entries in the Library Window

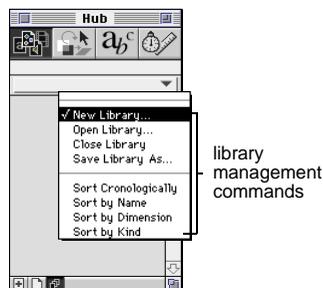
On the bottom bar of the Library window, there are some icons to help organize and identify different library entries easier. By clicking on the  icon, only dances-only types of entries are displayed in the Library window. By clicking on the  icon, only raw or DOB types of entries are displayed. By clicking on the  icon, *all* library entries are displayed.

Creating Library Catalogs

Before you use the Library window for the first time, there are no library entries or *library catalogs*. A library catalog is similar to a file folder, except it is a folder, or container, of library entries. Library catalogs are created to organize and “catalog” your collection of library entries. You can create a separate library catalog for every project, or separate catalogs for different types of object entries, or whatever other cataloging strategy that works best for you.

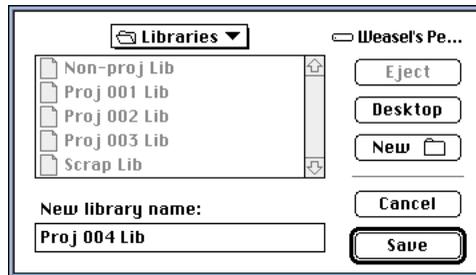
To create a library catalog, hold down your mouse button on the Library window’s pull-down menu and select “New Library...” from among the menu choices.

Figure 3-5 Creating a New Library Catalog



A dialog box is displayed for inputting the name of a new library catalog. Notice the folder selected in the dialog box—this is where your new catalog will be placed on your system. One idea is to create a folder called “Libraries” within your ObjectDANCER application folder (with the “New  ” option). Then, you can place all your library catalogs in one place: in the Libraries folder.

Figure 3-6 Creating a New Library Catalog in a “Libraries” Folder



As mentioned earlier, libraries are not linked to project files, so you can name them anything you want, and you can open any previously created library whenever you need it, regardless of whether an associated project is open. Also, you can open multiple libraries at once.

With your newly created library catalog(s), you can then import or drag objects into your open library catalog(s) in an organized fashion.



Note

If you do not create a catalog beforehand, and drag an object into the Library window anyway, ObjectDANCER will assume that you want to create a new library first, and will display the new library catalog dialog box.

Library Management Commands

The library management commands on the Library window’s pull-down menu are defined as follows:

- *New Library* - Creates a new library catalog.
- *Open Library* - Opens a previously created library catalog.
- *Close Library* - Closes a previously opened library catalog.

- *Save Library As...* - Saves a copy of a selected library catalog under a different name, or an exact copy with the same name in a different folder.
- *Sort Chronologically* - Sorts library entries within a selected library catalog in chronological order of when they were added to the library catalog.
- *Sort by Name* - Sorts the library entries within a selected library catalog in alphabetical order.
- *Sort by Dimension* - Sorts library entries within a selected library catalog by size (kilobytes).
- *Sort by Kind* - Sorts library entries within a selected library catalog by the type of entries.

You can have more than one library catalog open simultaneously; the names of all open library catalogs are displayed just above the library management commands on the pull-down menu. You can also switch back and forth between different library catalogs through this menu. When you invoke a the sort command, the sort takes place for opened library catalog displayed in the Library window.

Adding Library Entries to a Library

Although adding library entries is as simple as dragging and dropping (or copying and pasting) items into an open library catalog, there a few points worth mentioning, given the different types of entries.

Raw entries Raw entries are added by dragging a file (of a supported filetype—refer to “Extensive File Format Support” beginning on page 2 for a complete list) saved elsewhere on your system into an open library catalog. *Scrapbook* entries, or some text from the *Note Pad* can also be dragged into an open library catalog. As you drag these objects into a library catalog, an entry for each dragged object is displayed in the Library window. A thumbnail graphical representations of the objects are shown for easy identification of the kind of library entry it is.

DOB entries DOB entries are added to an open library catalog by clicking on the dancing object’s label in the Synchro Window, and then dragging it into the open library catalog. These objects, both in the Synchro Window and the library catalog, will have the same name (until you change the name(s), that is, by double-clicking on their object label).

Dance(s)-only entries For specific dances of objects that you would like to apply later to other objects within a project, click and highlight an object’s

attribute label in an “expanded” Synchro Window, and drag it into an open library catalog. To save multiple dances as a single grouped library entry, hold [shift] down while selecting desired object attributes within a dancing attributes list (in the Synchro Window), and then drag them into an open library catalog in a single drag movement.

Embedded or Linked Library Entries

Library entries can be either embedded or linked in a library catalog. While embedding objects within library catalogs keeps all the objects’ sources neatly together, it also increases a catalog’s size substantially, and in turn, increases a project’s size as well as the objects are dragged into a project from a library catalog. By linking objects instead, a library catalog’s size is significantly reduced because only the pathnames of linked objects are saved. Further, the memory weight of saving multiple copies of a particular embedded library entry in multiple library catalogs is not incurred, thus keeping memory usage to a minimum. Linked and embedded files are clearly identified in a library catalog: linked files are in *italics*; embedded files are **bolded**.

Whether files are embedded or linked is partly based on the pre-set “Embed import file” Input Preferences setting. When this setting is toggled on, all imported files are embedded, by default. If this preference is not set, however, these general rules apply: files dragged and dropped into a library catalog (i.e., raw entries) are linked; files copied and pasted into a library catalog (i.e., raw entries) are embedded; a file linked or embedded in the library catalog, and then dragged into a project, is also linked or embedded, respectively, within the project.

If you move file(s) from one machine to another, or from one folder to another, the linked files must also be moved in the same hierarchical folder positioning, or the links are lost. If you lose object links, you have to reset the links upon re-opening the moved files because a project always searches for all linked files/objects upon being opened. Linked objects that are later deleted from a catalog using the [delete] key, are deleted permanently from a catalog, but not from your system. An object(s) deleted within your project file should still be available wherever you filed the object file within your system files.

Importing Library Entries into your Project

Import library entries into your project by clicking on an entry(s) within an open library, and then:

- For *raw* or *DOB* entries, drag and drop (or copy and paste) the object(s) into the Compo or Synchro Window.
- For *dance(s)-only* entries, drag the entry on top of an object label within the Synchro Window.



Note

You cannot apply GX typography attributes (which would be a dance(s)-only entry) to non-GX text objects. If you attempt to drag a GX typography attributes library entry over a non-GX text object within the Synchro Window, the destination object is not highlighted, thus disallowing you to apply the GX attributes. The reason for this is that GX typography attributes are font family-specific, so it is not possible to mix these types of attributes with non-GX fonts.

Once you have imported an object from a library catalog into a project window, you can continue manipulate the object's dances within the project, but without modifying the dances of that same object still resident in the library catalog. You can later update a library entry with changes you made in a project window by dragging the changed object into the library catalog, which creates a new library entry. Delete the old entry that is now outdated, unless you want to keep both versions. If keeping both versions, rename them appropriately so you can easily distinguish them.

Renaming Library Entries

To rename a library entry (or object within the Synchro Window, for that matter), double-click on the object label to be renamed. A **Rename...** dialog box is displayed, where you can input a new name.

Deleting Library Entries

You can delete an entry three different ways. After first selecting the entry(s) to be deleted:

- select the **Cut** command (from the Edit Menu)
- press ⌘X
- press the [delete] key

To select multiple entries in a continuous range, hold [shift] down while clicking on the top and bottom entry within the range. To select multiple entries, but which are not listed in a continuous range, hold the \mathbb{A} key while selecting objects.

Before the selected object(s) is deleted, a dialog box stating “Confirm to clear selected items from library? This operation has no Undo.” appears. Press “Clear” to confirm, or “Cancel” to cancel.

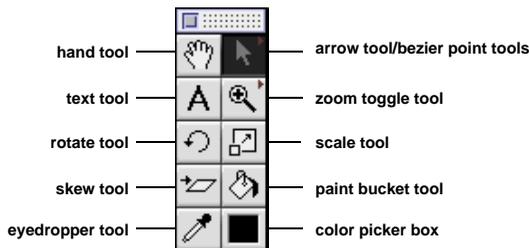
Show Library

By selecting the **Show Library** command from the *Windows Menu*, you can either open the Hub window with an open library catalog displayed, or the Hub window with a pop-up bar to create a new library catalog or open an existing one (among other capabilities). If the Library window were previously opened, this command brings the window to the forefront of your open windows.

Toolbox Palette

ObjectDANCER provides you with another very important palette—the Toolbox palette. This palette is accessible from the *Windows Menu* by selecting the **Show Tools** command. With the tools on this palette, you can apply special editing functions to different types of objects within your project. Since the tools on this palette are used regularly while working within the Compo, Synchro, or Sound Windows, this palette can remain open on your screen as you work (as with any palette). Figure 3-7 shows the tools available on the Toolbox palette.

Figure 3-7 Toolbox Palette



Following are descriptions on how to use the tools in the Toolbox palette.



hand tool The hand tool enables you to drag the viewing area within the Compo, Synchro, and Sound Windows. By selecting this tool, your cursor will

change to an open hand 🖐️ when your mouse button is unclicked, or a fist 🖊️ as you drag the viewing area left, right, up or down, as needed.

 **arrow tool** The arrow tool, as your primary cursor for selecting and editing objects, is typically the selected default tool within the Toolbox palette; all other tools are special purpose tools (including the underlying bezier point tools). Within the Compo Window, after selecting an object(s) with the arrow tool, you can adjust its position by dragging it to a new location, or edit an object's path by first changing the current time, and then dragging the object to a new location. You can adjust an object's scale by dragging on the corner handles. With graphics, the skew changes by dragging on an object's middle handles; with text objects, the text area changes by dragging on the object's middle handles.

The arrow tool is also used for selecting multiple objects while holding down the [shift] key. After selecting objects, you can “gloup”, “ungloup”, cut, delete, or copy and paste objects. For more details on additional keystroke commands with the arrow tool, refer to Appendix A.

The small arrow adjacent to the arrow tool icon indicates that there are additional tools beneath this tool button. See bezier point tools that follow.

 **bezier point tools** By holding down your mouse button while selecting the arrow tool, you are presented with the bezier point tools. These tools are used for editing the path between an object's current position and delta position within the Compo Window. Bezier points are also used for editing the speed slope/bezier curves within object attributes' Speed Variation Windows.

Since the usage of bezier point tools to manipulate bezier points and curves warrants a full discussion on bezier curve editing, refer to the “Editing the Curve with Bezier Points” section beginning on page 73 for more details about using the bezier point tools. Also, refer to “Speed between Keyframes” beginning on page 83 about using bezier tools to adjust the speed between keyframes.

 **text tool** This tool allows you to create text objects or modify text objects' dances within the Compo Window. By selecting this tool, and then selecting a text object, you can edit the content of the text object by highlighting portions of the text, cutting or deleting it, copying and pasting it, or typing additional text. You can also edit text by just double-clicking on the text object, and the cursor will change to text edit mode.

 **zoom toggle tools** These tools enable you to zoom in or zoom out the timeline scale of the Compo, Synchro, or Sound Windows, depending on

where you click. These tools work as a toggle (indicated by the small arrow adjacent to the tool icon), whereby the opposite tool is accessed by holding down your mouse button while selecting the zoom tool icon.



rotate tool This tool allows you to manually rotate objects by dragging on an object's corner handles. Use the ⌘ key while clicking on a corner handle to switch from the arrow cursor to the rotation cursor.



skew tool This tool allows you to manually rotate objects by dragging on an object's side, top, or bottom middle handle. Use the ⌘ key to while clicking on a corner handle to switch from the arrow cursor to the skew cursor.



scale tool This tool allows you to manually scale objects to be larger or smaller by dragging on an object's handle.



eyedropper tool This tool allows you to drag your eyedropper cursor over an existing color anywhere in the Compo Window, which changes the color picker box as you drag, real-time, showing the color of the pixel underneath the point of the eyedropper cursor. When your eyedropper cursor is over the color that you want, click on the paint bucket tool, and then click on a text or GX object. The selected text or GX object will take on the new color.



paint bucket tool This tool works hand in hand with the color indicated in the color picker box to apply a chosen color to text or GX objects.



color picker box This box holds the real-time color sample as selected while dragging the eyedropper tool over colored objects within the Compo Window.

Another way this tool can be used is to click on the color picker box and the color picker window is launched where you can mix and select a color of your choice. Use the paint bucket tool to apply the selected new color to a text object or GX object.

Show Tools

By selecting the **Show Tools** command from the *Windows Menu*, you can either open the Toolbox palette if not already opened on your desktop. Since the tools on this palette are used regularly while working within the Compo, Synchro, or Sound Windows, you can leave this palette (as with any palette) open on your desktop so it is readily available whenever you need it.

A Closer Look at Object Attributes

As you can see by the expanded Synchro Window in Figure 3-3, objects have great depth as far as how their attributes can be changed and manipulated throughout their lifespan in your project.

Common Attributes

The many text and graphics object attributes are extensive, thanks to QuickDraw GX capabilities. Following are some details about each of the common text and graphics attributes (text-only and audio-only attributes follow this section).

 **visibility** This is a toggle to make a text object visible or invisible at a specified time that a visibility keyframe exists. By default, this dance is checked and the object is visible. When unchecked, the object becomes invisible.

 **position** These x, y coordinate values specify the object's anchor point position within the Compo Window. For points of reference, the 0,0 position is in the upper left corner of the Compo build window; the bottom right corner is equal to the dimensions of the window as designated upon first opening your project file (e.g., 320, 240 x, y coordinate would be a 320 x 240 window).

 **rotation** A degree value is inputted in this field to modify the rotation of the text object around its center anchor point. This attribute can also be modified by selecting the rotate tool from the Toolbox palette, and manually dragging a corner handle of the object in the desired direction.

 **scale** These x, y coordinate values represent the enlargement of the object with respect to its original size. This dance can be modified by selecting the scale tool from the Toolbox palette and dragging a corner handle of the object to the desired size. Also, new values can be inputted in these fields to add a new keyframe and change the scale coordinates.

 **anchor point** These x, y coordinate values specify the relative position of the anchor point compared with the upper left corner of the object. New values can be inputted in these fields to add a new keyframe and change the anchor point position.

 **skew** These x, y coordinate values correlate to geometric coordinate mappings of the center anchor point for the object that will be distorted,

or skewed, by changing the angle value between the x and y axis. This dance can be modified by selecting the skew tool from the Toolbox palette and dragging a middle bordering handle of the object to the desired skew. Also, new values can be inputted in these fields to add a new keyframe and change the skew coordinates.

 **opacity** A percentage value can be inputted to change how opaque the object is compared with overlaying or underlaying objects. The lower the opacity value, the more “see through” the object is; the higher the opacity value, the more opaque the object is. 0 means transparent.



Note

The opacity attribute only allows inputs when the *Over* or *Translucent* transfer modes are selected.

 **transfer ink modes** With transfer ink modes, you can manipulate the way, or mode, of transferring the color of text or graphics objects to their destination component. The different QuickDraw GX modes specify the interaction between the color in the ink object and the existing color or colors of the destination. You can make an object opaque or transparent, draw only part of it, change its color, or combine its color with the destination image’s color in many different ways.

The following transfer ink modes and examples demonstrate these variations.¹

- *Opaque* - The ink object color component is copied to the destination component. The destination component is ignored. This is the most common transfer ink mode, and is the default for QuickDraw GX.



- *Overprint RGB* - The ink object color component is added to the destination component, but the result is not allowed to exceed the maximum value.



1. Apple Computer, Inc., *Inside Macintosh: QuickDraw GX*, Addison Wesley, 1994.

- *Translucent* - The result is the average of the ink object and destination color components, weighted by a ratio specified by the operand component. When this transfer mode is selected, the degree of blending can be modified by changing the opacity attribute's percentage.



- *Migrate* - The destination color component is moved toward the ink object component by the value of the step specified in the operand component. Migrate is similar to Translucent, except that the change in destination component is an absolute amount, rather than a proportion of the difference between it and the ink object component.



- *Tinted Glass* - The ink object component replaces the destination component only if the ink object component has a smaller value (drawing occurs only within the area occupied by the cloud).

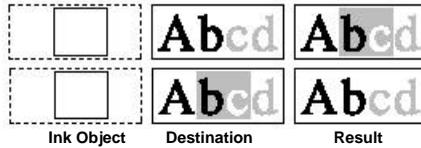


- *Tinted Light* - The ink object component replaces the destination component only if the ink object component has a larger value (drawing occurs only outside of the area occupied by the cloud).



- *Highlight* - The ink object component and operand component are swapped in the destination component. Other component values in the destination

component are ignored. In text, it gives the effect of drawing over the letters with a highlighting pen.



- *And* - The bits of the ink object color and destination color are combined using an AND operation. Only bits that are set in both the ink object and destination remain set in the result.



- *Or* - The bits of the ink object color and destination color are combined using an OR operation. Bits that are set in either the ink object or the destination or in both are set in the result.



- *Xor* - The bits of the ink object color and destination color are combined using an exclusive-OR (XOR) operation. Bits that are set in the ink object but not the destination, and bits that are set in the destination but not the ink object, are set in the result. All other bits are cleared in the result.



- *Ramp And* - The ink object and destination color components are normalized, and the result of (ink object * destination) is the result.



- *Ramp Or* - The ink object and destination color components are normalized, and the result of $(\text{ink object} + \text{destination} - \text{ink object} * \text{destination})$ is the result.



- *Revert* - The ink object and destination color components are normalized, and the result of $(\text{ink object} + \text{destination} - 2 * \text{ink object} * \text{destination})$ is the result.



- *Over* - The ink object color is copied to the destination, and the ink object transparency controls where the destination color shows through. Where both are transparent, no drawing occurs (result equals destination). When this transfer mode is selected, the alpha channel is activated, and the degree of over blending can be modified by changing the opacity dance's percentage.



- *Straight Alpha* - The ink object color is placed over the destination, but the resulting destination retains the original destination's transparency. The effect is that opaque parts of the ink object are clipped to cover only opaque parts of the destination.

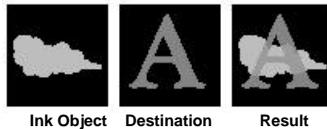


- *Exclude* - The destination color remains visible only where the ink object is transparent, and the ink object color is copied anywhere the destination is

transparent. Where both are transparent, no drawing occurs (result equals destination); where both are opaque, the result color is 0 (no intensity).



- *Fade* - The ink object is blended with the destination, using the relative alpha values as the ratio for the blend. Where both are transparent, the result is the average of the ink object and the destination).



 **alpha channel** By selecting this toggle, you are essentially selecting the Over transfer mode, and activating the alpha channel. By default, alpha channel is unchecked and not activated (unless previously set in the Output preferences window).

 **color** Allows you to change the color of a GX object. By clicking on the color bar (which might be a black or gray bar if you haven't changed color yet) to the left of the icon, a color picker window is opened where you can modify the color of the object.

Text Object Attributes

Following are some details about each of the text attributes. Many of these attributes can be changed through the *Type Menu* options as well.

 **color** Allows you to change the color of the text object. By clicking on the color bar (which might be a black or gray bar if you haven't changed color yet) to the left of the icon, a color picker window is opened where you can modify the color of the text object.

 **font family** Allows you to access a font family pop-up menu and change the font of the text object from among the font families installed on your system.

 **font size** Allows you to change the size of the font within the chosen font family.

 **text area** Allows you to modify the text area that has been designated for the text object to fit in. When text is entered that does not fit neatly in the given text area, the text is wrapped onto the next line.

————— text area —————

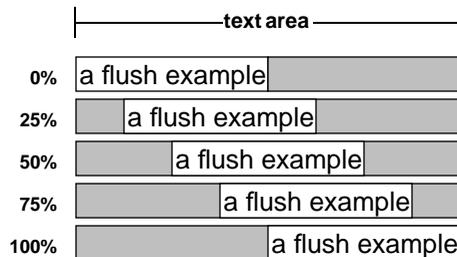
**When your dreams turn
to dust, vacuum.**

————— increased text area —————

When your dreams turn to dust, vacuum.

 **layout justification** The layout justification percent setting correlates to the spread justification positioning of the text within its specified text area, whereby a 0 value specifies no justification (i.e., normal), a 100 value specifies full justification, and a value in between means that the extra space in the text area is proportionally distributed among the text characters within the text object.

 **layout flush** The layout flush setting correlates to the horizontal positioning of the text within its specified text area, whereby a 0 value specifies left justification, a 100 value specifies right justification, and a value in between means the text is proportionally positioned between the left and right margins of the text area. For example:



In a Synchro Window text attributes list, the layout flush is represented by a percentage value. In the Hub's Text Attributes palette, however, layout flush is graphically represented with icons illustrating flush settings.

 **Spacing** This setting adjusts the spacing proportionally among characters within a text object.

 **Leading** This setting allows you establish a set amount of spacing between lines when multiple lines exist in a particular text object (much like the “leading” value that you can set in most word processing applications).

 **track** *This attribute only applies to text using a GX font.* This setting allows you to adjust (increase or decrease) the spacing between characters; this a value specifies the relative tightness or looseness of spacing between characters. Positive track settings result in an increase in the looseness of all characters in the text object. Negative track settings result in a increase in the tightness of all characters in the text object. The actual amount of spreading or compression between characters is controlled by the font, and can vary with point size. For example:

Dance WITH US  track > 0 (10%)

Dance WITH US  track = 0 (0%)

DanceWITHUS  track < 0 (-10%)

 **GX typography and Adobe multiple font master attributes** If you select a GX or Adobe Multiple Font Master font as the font family of your text object, you will typically be offered a number of additional attribute settings. These special settings are not described here, and often may only be described in the documentation that comes with the GX or Adobe font. Manipulating text objects that are in a GX or Adobe Multiple Font Master font is very powerful, since there are so many ways to manipulate the text.

Audio Object Attributes

Following are some details about the audio attributes.

 **volume** You can adjust the volume level of your audio file during play within your project by adding additional keyframes along the volume dance bar with values from 1 to 100, whereby 1 is essentially mute, and 100 is the loudest.

 **balance** The balance attribute is similar to the balance setting on your home stereo; it is the stereo distribution between the left and right speakers. (AIFF audios only)

Chapter 4 ●

Basic Choreography

Importing Objects

As alluded to many times already, projects are made up of many object files carefully manipulated in precise and intentional patterns. In order to get all the different objects into the project windows in the first place, though, you have to import them.

ObjectDANCER allows objects to be imported into the project windows through either dragging and dropping, copying and pasting, or using the Import command from the *File Menu*. Since there are a few notable considerations for each of these different import methods, these mechanisms have been described in more detail in the following sections. Common to all import mechanisms, however, is the type of files that can be imported.

To recap from Chapter 1, the following list summarizes the different ObjectDANCER supported file formats:

Image

- GIF (*.GIF files)
- JPEG (*.JPG files)
- PICT
- GX graphics or text

- rgb.sgi
- ASCII text
- Adobe PhotoShop
- MacPaint
- QuickTime movies, including sprite, video, or text tracks

Text

- direct input text
- ASCII

ObjectDANCER Projects

Sound

- AIFF
- AIFC (IMA 4:1, MACE 3:1 MACE 6:1, μ law 2:1)
- WAV (*.WAV files)
- AU (*.AU files)
- DigiDesign Sound Designer II
- QuickTime sound tracks

MIDI files

- *.MID files
- QuickTime MIDI tracks

Audio CD

- Drag and drop track from audio CD

Depending on the way you import objects into your project and/or depending on the pre-set Input Preferences setting (i.e., “imported file embedded”), you can either embed or link objects. While embedding objects within your project keeps all the objects neatly together, it also increases your project’s size immensely. By linking objects instead, your project’s size will be significantly reduced because only the pathname is saved, or linked, to the linked object. Further, if you later changed a linked file, your project file is automatically updated with the new version of the linked object. If the same object file is linked in multiple places within a project, all linked locations are updated simultaneously. If your objects

are embedded instead, you must re-import any changed object files into your project.

A project can have a combination of linked objects and embedded objects. To identify which is linked and which is embedded, you would have to have all your projects also in a Hub library. Linked files will always be listed in the Hub library in *italics*; embedded files are always listed in **bold** type.

If you move a project file(s) from one machine to another, or from one folder to another, the linked files must also be moved in the same hierarchical folder positioning, or the links will be lost. If you lose your object links, you will have to reset the links upon re-opening the moved project file because a project always searches for all linked files/objects upon being opened.

Linked objects that are later deleted from your project using the [delete] key on your keyboard, are deleted permanently from your project, but not from your system. An object(s) deleted within your project file should still be available wherever you have filed the object file within your system files.

For all of these reasons, it is important to plan which way you want to import your project's objects before getting too far in your design effort. The following sections describe the three different import mechanisms in more detail, in addition to defining when objects are linked or embedded using the different mechanisms.

Drag and Drop

The first import mechanism is drag and drop. Drag and drop objects can come from multiple sources, such as the *Scrapbook*, or *Note Pad* (in your  Menu), or from files created in other applications. Similarly, you can always drag and drop an object from a Hub library into one of your project windows. As long as the object being dragged and dropped is of an ObjectDANCER supported format, and the application that the object is being dragged from supports drag and drop capabilities, the object can be dragged and dropped into the project windows.

From an open file of a supported filetype, click or highlight the object that you want to drag and drop. To select multiple objects from within the same file, hold [shift] down while selecting (highlighting) the objects. Then, drag and drop the object(s) into a project window.

You can drag and drop a closed file of a supported filetype directly into your project windows as well. Highlight the file's icon on your system, and then drag

(and drop) it into the Synchro Window. This method is particularly for graphics or audio files, not large text document files.

If an object is drag and dropped from another application's open file, then the object is always embedded. All other drag and drop objects are embedded or linked, depending on the established Input Preferences option.

Once an object(s) has been dragged and dropped into the project windows, the object(s) may be adjusted or edited to a desired size, location, position, etc. by using ObjectDANCER's editing tools.

Copy and Paste

The second import mechanism is to use the **Copy** and **Paste** commands from the *Edit Menu*. Such objects can be copied from multiple sources, such as the *Scrapbook*, or *Note Pad* (in your  Menu), for from files created in other applications which support the same filetype formats that ObjectDANCER supports. Regardless of where you copy your objects from, the copy and paste mechanism remains the same:

1. Click or highlight the object to be imported. To copy multiple objects from within the same file, hold [shift] down while selecting (highlighting) the objects.
2. Select the **Copy** command (or C) from the *Edit Menu*.
3. Click your mouse in an open project window to make it active (either a Compo or Synchro window).
4. Select the **Paste** command (or P) from the *Edit Menu*.

Copy and paste objects are always embedded into projects instead of linked.

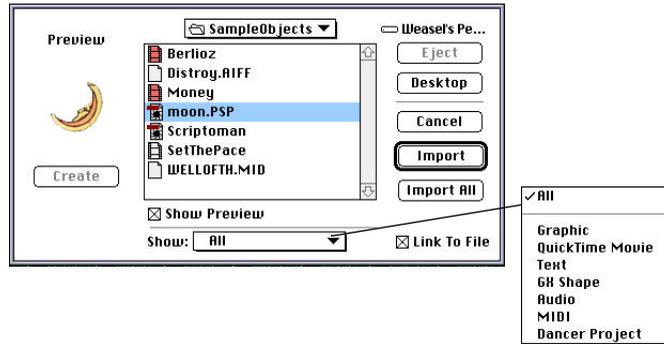
Once an object(s) has been pasted into the project windows, any object may be adjusted or edited to a desired size, location, position, etc. by using ObjectDANCER's editing capabilities. If you would like to change the name of any imported object, double-click on the object label and a **Rename...** dialog box will appear.

Import Command

The third and final import mechanism is to use the **Import** command from the *File Menu*. Upon selecting this command, you are presented with a dialog box similar

to Figure 4-1, which includes a scroll box listing files from the folder that you last opened. To select a different folder, use the pull-down menu above the file list.

Figure 4-1 Import Command Dialog Box



The icons at the bottom of the window represent the different types of files that you can display within the scroll box, and ultimately the types of files that you can import into an ObjectDANCER project.

By checking the *Show Preview* option, you can display thumbnail representations of the files that you want to import on the left side of the dialog box. By checking the *Link to File* toggle option, ObjectDANCER allows you to specify that all objects imported with the **Import** command should be linked to your project, until otherwise unchecked; if unchecked, the imported object(s) through this dialog box will be embedded in the project file instead.

By clicking on *Import All*, all files within the specified folder that are ObjectDANCER-supported filetypes will be imported into your project. To select only one object at a time, highlight a file and then click on the *Import* button.

Once an object(s) has been imported into a project window, the object(s) may be adjusted or edited to a desired size, location, position, etc. by using ObjectDANCER's editing tools.

Editing Commands

ObjectDANCER uses very familiar object manipulation commands that are commonly found in many other applications, so reviewing these commands should be fairly straight forward.

The **Cut (⌘X)**, **Copy (⌘C)**, and **Paste (⌘V)** commands can be categorized as “clipboard commands”. When you **Cut** or **Copy** a selected object(s) within a project, the contents are always stored in a clipboard buffer until another subsequent command replaces the clipboard buffer’s contents. The **Paste** command works in the opposite way, in that it pastes the clipboard contents into a project window.¹ The **Clear** command removes a selected object(s) without saving a copy to the clipboard. Using the **Clear** command is the same as selecting an object(s) and pressing the [delete] key on your keyboard.

If you are editing text objects as a whole, then the text objects are manipulated just like a graphic object: they are cut, copied, pasted, or cleared as a singular object (even if your text object is multiple letters, words, or lines). If you want to edit the actual content of the text object, you must first click on the *text tool* in the Toolbox Palette, and then click on the text object to edit the content.

You can cut, copy, paste, or clear objects or object attributes between windows, projects, or even Hub libraries, and, if you invoke any of these commands by mistake, you can easily undo the command through the **Undo** command. To redo a command that you “undo”, select the **Redo** command. In fact, you can undo (or redo) 10 or 20 or more changes, if needed, thanks to a special setting offered in the General Preferences dialog box (from the *Edit Menu*). The *Undo level* setting allows you to establish a buffer size of a certain amount of changes that you can undo (and then redo). Refer to the “General Preferences” beginning on page 23 for more details on the *Undo level* setting.



Note

Even though the value you enter in the Undo level is unlimited, it is recommended that you keep the number reasonable since it represents a buffer size. The larger your buffer size is, the more likely your chances are of crashing your system because of running out of memory.

Some commands—such as opening or saving a file or selecting objects—are irreversible, however. When an action cannot be undone, you can revert to the last saved version of the file by using the **Revert...** command on the *File Menu*.

1. Refer to the “Paste Special” section beginning on page 78 to learn about additional pasting features.

Controlling Object Stacking Order

When you drag and drop objects into the Compo Window, each new object is placed in front of all other objects that may already be in the Compo Window. If the new object is opaque, it covers up objects in back of it. By using the **Send to Back**, **Bring to Front**, **Shuffle Back**, and **Shuffle Forward** commands from the *Arrange Menu*, you can change the objects' "stacking order" within your Compo Window. This stacking order ultimately affects the way items are displayed and printed relative to one another. The stacking order of graphics and text objects is also illustrated in the Synchro Window, whereby the first listed object is the front-most object in the Compo Window, and the final object listed is the back-most object in the Compo Window.

The **Send to Back** (⌘B) command brings a selected object(s) at the back (or bottom) of a stack of objects to the front (or top) of the stack; the **Bring to Front** (⌘F) command sends a selected object(s) at the front (or top) of a stack of objects to the back (or bottom) of the stack. The **Shuffle Back** and **Shuffle Forward** commands work similarly, except the movements are only one layer at a time. In other words, these commands move a selected object(s) one layer backward or forward, respectively, within a stack of objects.



Note

If you click on an object within a stack of objects, and **Bring to Front** or **Shuffle Forward** are not available in the *Arrange Menu*, then the object is already at the top of the stack.

If you click on an object within a stack of objects, and **Send to Back** or **Shuffle Back** are not available in the *Arrange Menu*, then the object is already at the bottom of the stack

Gloup/Ungloup

The **Gloup** command is similar to the "group" command commonly found in other graphics applications, except that with this command, the selected objects maintain their individual handles and central anchor points. If the objects were "grouped", the way most graphics applications handle "groups", the grouped

objects would only have a single central anchor point (instead of each object within the group having their own anchor point) and there would be one set of handles around the entire group (instead of each object maintaining their own individual handles).

Objects having individual anchor points and handles instead of group anchor points and handles is integral to ObjectDANCER since it determines how objects can be manipulated. Grouping allows objects to maintain their individual manipulative ability after the “group” effect no longer makes sense (ungroup).

To group objects within ObjectDANCER, hold the [shift] key down while clicking on objects to be selected. Another way to select multiple objects in one movement is to drag the cursor from the outer area of the objects to the opposite corner of the area; a guide box will be temporarily drawn, until unclicking your mouse, whereby the objects within the box are selected. Then select the **Group** command from the *Arrange Menu*.

Center Anchor Point

The **Center Anchor Point** command (on the *Arrange Menu*) allows you to reset the x and y values of the anchor point so it is centered in the Compo Window. These values become available relative to the time of the current time (i.e., RCT line position) at which time this command is invoked.

Modifying Text

You are given three different ways to modify text within ObjectDANCER:

- via the options available through *Type Menu*
- via the Text Attributes palette (in the Hub)
- via the object attributes lists available when you have a text object’s attributes list expanded

The *Type Menu* offers you a number of options to edit text objects the way you want. After importing text into a project window, select a text object(s), and use the options from the *Type Menu* to modify it, as follows:

Font Allows the typeface (also known as font) of the selected text object(s) to be modified. By highlighting a different font within the font list (other than the one that is checked), you can change the font of a text object(s). If you do not see a font that you want, ensure that it is installed correctly on your system.

Size Allows the size of the font of the selected text object(s) to be modified. By highlighting a different size within the font size list (other than the one that is checked), you can change the size of the text object.

Justify Allows you to set the positioning of text within the text area established for the text object. The options *Left*, *Center*, *Right*, or *Full* are illustrated below:

Left : : **Center** : : **Right** : **F u l l** :

Style Allows different styles of a font to be applied to a selected text object(s). You can change the style of the text object by highlighting the style you want from the style list (other than the one that is checked). The style options are illustrated below:

Plain, **Embolden**, *Slant*, Underline, Condensed, Extended

Using the Text Attributes palette or a text objects dancing attributes list to modify the text instead are other viable mechanisms to modify text objects. All mechanisms primarily work the same, although they are included within the software package to give you some flexibility in how you work with ObjectDANCER.

Changing The Background Color

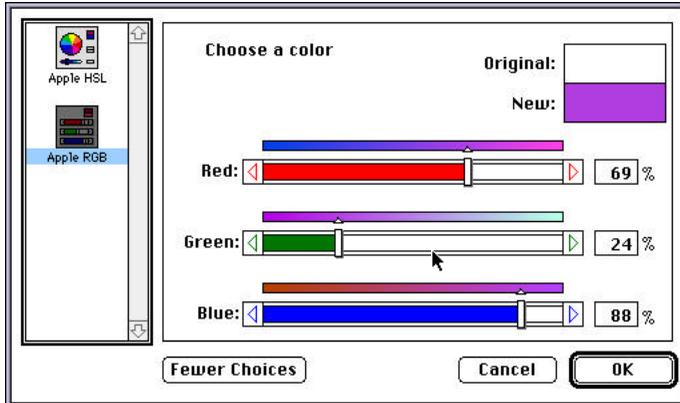
The **BackGround Color...** command allows you to change the background color of the Compo build window, and ultimately your animation. Depending on your system, you will have either one or two color models to select your background color from: an RGB (red-green-blue) model and an HSL (hue-saturation-lightness) model. RGB, the more common of the two models, is a color model often used by those who work with video. Red, green, and blue light is mixed to achieve the colors visible to a video monitor.

HSL is a color model often used by artists because it resembles the way artists mix colors on a palette. *Hue* describes the color pigment; *saturation* is the measure of color pigment present; and *lightness* refers to the amount of white in the color.

By selecting this command, a window similar to Figure 4-2 or Figure 4-3 appears. Select the color model that suits your background best, if not already displayed.

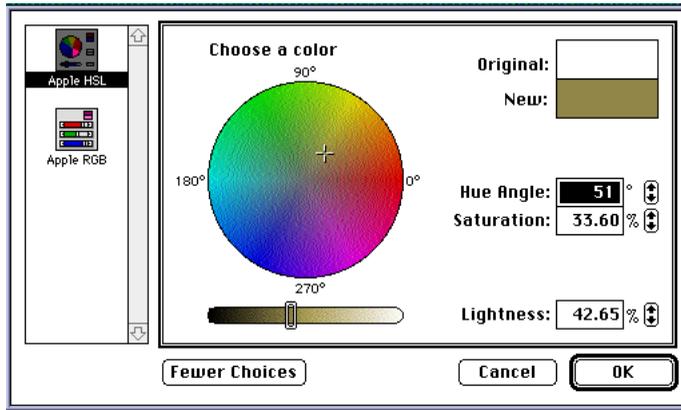
To use the RGB color model (Figure 4-2), move the cursor over the red, green, and blue color rulers. Adjusting one ruler at a time, hold the mouse button down while dragging the handles on the red, green, and blue rulers; release the mouse button when the **New** color box displays the color that you want. As you adjust the rulers, the red, green, and blue percentile values are automatically adjusted.

Figure 4-2 BackGround Color...—RGB Color Picker Window



To use the HSL color model (Figure 4-3), move the cursor over the color wheel with your mouse; the cursor changes to a + sign. Drag the cursor over the color wheel, and release it when the **New** color box displays the color that you want. The hue, saturation, and lightness values are automatically adjusted. You can also adjust the color variations by dragging the handle on the color bar just beneath the color wheel to the left or right.

Figure 4-3 BackGround Color...—HSL Color Picker Window

**Note**

Changing background color within ObjectDANCER is not currently animatable. However, if you wanted to animate the background, you could first create an object the same size as the compo build window, and create an animated background just as you would create any animation. Lock this portion of your animation with the **Lock** command (*Arrange Menu*), and then you could create a primary animation with objects lying over your created background animation.

Chapter 5 ●

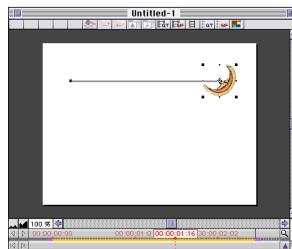
Fine Tuning

Editing the Curve with Bezier Points

The curved motion between any two points of animation within your project is known as a *bezier curve*. The axis of the curve, where the curve actually bends, is known as a *bezier point*. Your animations will be made up of many bezier curves and points as you create the many different object paths within your project.

To edit, or even create a curve, between any two points in an object's path, you have to add and manipulate *bezier points* within an object's path. To describe this further, let us back track for a moment to our original animation in Chapter 2, where we created a movie with a "moon" object moving from the left to the right of the screen. If you recall, the movement was created by moving the current time, and then dragging the object to its new location, as in Figure 5-1.

Figure 5-1 Creating an Object's Path

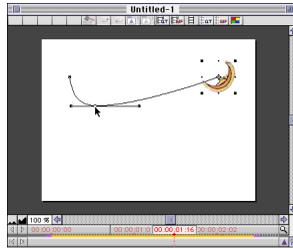


Adding Bezier Curves

To create a curving, swooping movement of an object after you have created a basic object path, as in Figure 5-1, hold down [option] while clicking and dragging on the object's path. The cursor will change to the *add bezier point cursor* with a plus sign, such as , as you drag the path line and add a bezier point and curve to the object's path.

Another way you can add a curve is to select the *add bezier tool*  from the Toolbox Palette. This changes your cursor to an add bezier point cursor (instead of holding down the [option] key).

Figure 5-2 Adding a Bezier Point to a Path

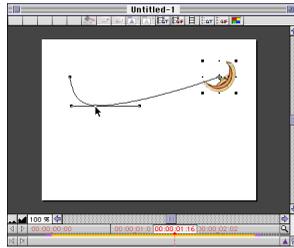
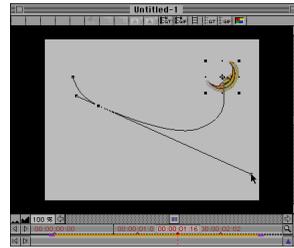
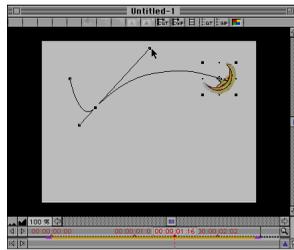
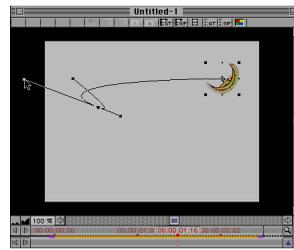


When you create a bezier point, a tangent is created at the axis point of the curve. Specifically, the *bezier point* is the middle handle on the tangent, or the axis of the tangent line. The endpoints of the tangent are the *bezier tangent endpoints*. By dragging on any of the three bezier handles, you can manipulate and skew your bezier curve in many different formations.

Manipulating Bezier Points and Curves

As mentioned, by dragging any of the three bezier handles, the center bezier point or the tangent endpoints, in any direction, you can manipulate the dimensions of your bezier curve, and thus the object's path, into many different curve formations. Since the movement of objects is the most critical part of making a smooth animation, clearly understanding all the many ways you can manipulate bezier curves is very important. Although trusting in your own creativity and experimenting with different manipulations by trial and error is probably the best teacher around.

Figure 5-3 illustrates a number of different examples of how you can modify the bezier curve by dragging the bezier point or tangent endpoints.

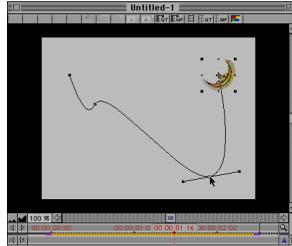
Figure 5-3 Manipulating the Curve with Bezier Points and Tangent EndPoints**Example 1:** vertical movement of bezier curve (dragging center point)**Example 2:** stretching a bezier endpoint (dragging right endpoint)**Example 3:** contorting bezier curve (dragging right endpoint up)**Example 4:** looping bezier curve (dragging right endpoint 180°)

In Example 1, by dragging the center bezier point up or down, you can make the curve shallower or deeper, respectively. Example 2 shows how the curve widens in the curve section between the path's endpoint and the center bezier point, or the curve could be made narrower if the tangent endpoint was dragged in the opposite direction.

You can contort the path's curve by dragging up on a bezier tangent endpoint, towards the center of the curve, as shown in Example 3. Example 4 shows that by dragging a tangent endpoint in a rotation of 180°, and thus crossing the tangent line over the opposite side of the curve, you can create a looping bezier curve.

You can even add additional bezier points in an object's path by selecting another area of the curve with the add bezier point cursor in the same way that you made the original curve, as in Figure 5-4.

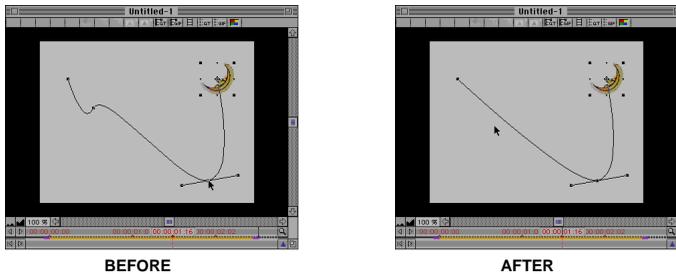
Figure 5-4 Adding Additional Bezier Curves along a Single Path



Deleting a Bezier Point

To delete a bezier curve, and return an object's path to being straight again, as it was when the path was first created, select the *delete bezier tool*  from the Toolbox Palette to change your cursor to a *delete bezier point cursor*, such as . By clicking on the center bezier point of the bezier curve, the bezier curve is deleted.

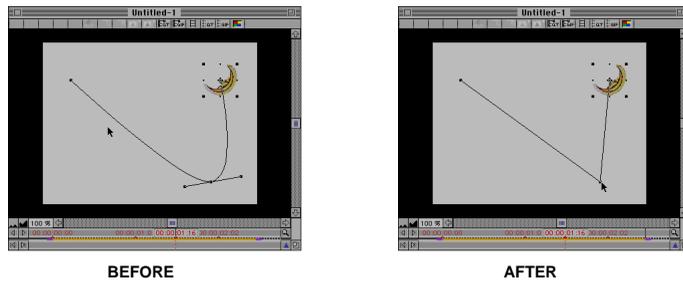
Figure 5-5 Deleting a Bezier Point



Converting a Bezier Curve to an Angle

Another curve manipulation tool is the *convert bezier tool* which converts a bezier curve into an angle. To convert a bezier point, select the convert bezier tool  from the Toolbox Palette to change your cursor to a *convert bezier point cursor*, such as . By clicking on the center bezier point of the bezier curve, the bezier curve is converted to an angle, as in Figure 5-6.

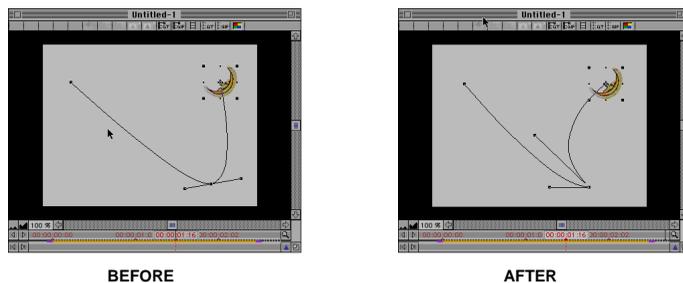
Figure 5-6 Converting a Bezier Curve into an Angle



Splitting a Bezier Tangent

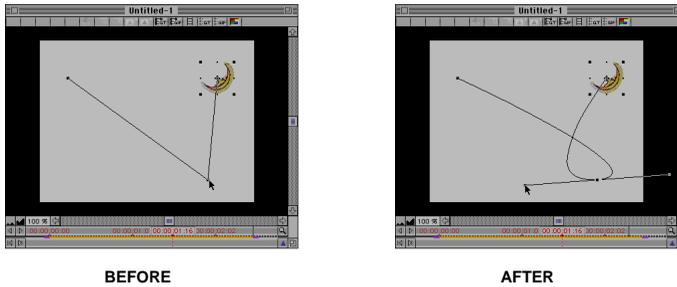
You can also use the *convert bezier tool*  to split a bezier tangent, and create a different kind of bezier angle. When you split a bezier tangent, you can create irregular paths for your objects to follow, where on one side of the path it may be curved, and at the center bezier point, the path takes a turn in a totally different direction. Again, the best way to illustrate this is with a picture, as shown in Figure 5-7.

Figure 5-7



Converting a Bezier Angle to a Bezier Curve

To revert the bezier angle back to a bezier curve, select the *convert bezier tool*  tool from the Toolbox Palette again. By dragging on the angle point, the angle will revert back to a bezier curve. See Figure 5-8.

Figure 5-8 Converting from a Bezier Angle to a Bezier Curve

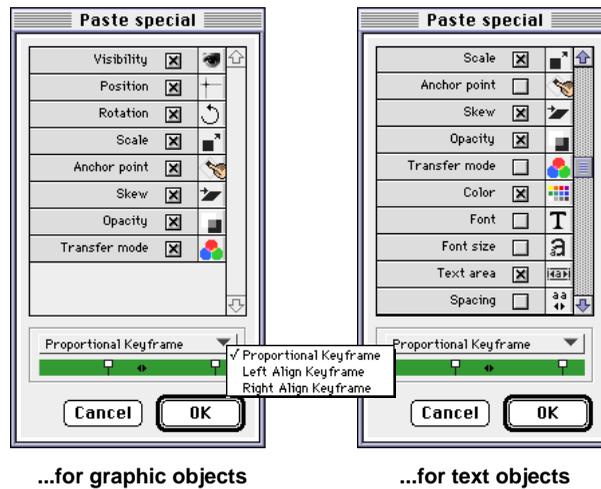
Paste Special

ObjectDANCER offers a very powerful pasting command called **Paste Special...** (on the *Edit Menu*). This command allows you to take some or all dances from one object in your project, and paste them to another object, or selected group of objects.

The first and easiest way to use the Paste Special function is to drag a dancing object in the Synchro Window on top of another object within the Synchro Window. *All* attributes from the pasted-from object are inherited by the pasted-to object. The inherited keyframes in the pasted-to object are automatically left aligned.

The second and more “special” way to use Paste Special is to select a dancing object (i.e., a paste-from object) from the Synchro Window (or library catalog in the Hub window) and copy it to the clipboard using the **Copy** command (or ⌘C). Select a paste-to object(s), and then select the **Paste Special...** command from the *Edit Menu*. A Paste Special dialog box appears, where you can toggle which attributes you do or don’t want to paste onto the selected destination/pasted-to object(s), as illustrated in Figure 5-9.

Figure 5-9 Paste Special Dialog Boxes



At the bottom of the Paste Special dialog box, you are presented with a keyframe alignment pull-down menu, with options to align the keyframes within the object's dance bars. The keyframe alignment options are described as follows:

 **Proportional Keyframe** This option time stretches the keyframes to proportionally be distributed within the paste-to object's dance bars.

 **Left Align Keyframe** This option distributes the keyframes from the beginning (left side) of the object's dance bars, with the same spacing as the paste-from object's dance bars.

 **Right Align Keyframe** This option distributes the keyframes from the end (right side) of the object's dance bars, with the same spacing as the paste-from object's dance bars.

Note

If the “paste from” object has a larger lifespan than the “paste to” object, then the keyframes will still be pasted to the “paste to” object, but the keyframe mushrooms will be placed outside of the object lifespan range.

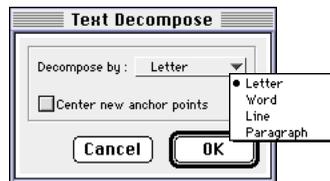
Text Decompose

Another very powerful command is **Text Decompose**. This command allows you to take a single text object made up of one word or multiple words, and break it down to be single characters or single words, and hence, multiple objects. When the text object is broken down, each smaller component of the larger text object becomes an individual object with inherited dances from the original object.

To demonstrate how **Text Decompose** works, try it out in a “test” project, and follow these steps:

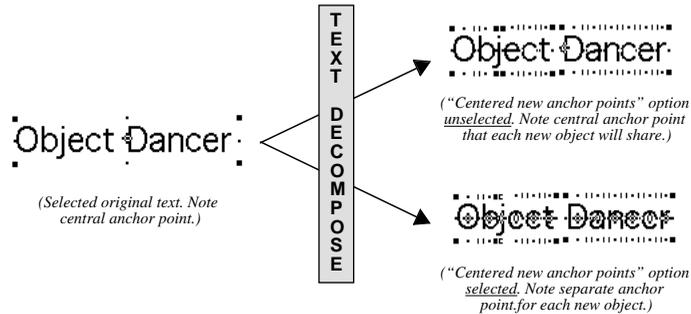
1. Import a text object into your project.
2. Select the text object within the Compo Window.
3. Select the **Text Decompose** command from the *Arrange Menu* (or press the  smart icon. The following dialog box appears.

Figure 5-10 Text Decompose Dialog Box



4. From the pop-up menu, select how you would like to segment the text object (e.g., by letters, by words, etc.).
5. If you would like each new segment (text object) to have new anchor points at the center of each text object, select the *Centered new anchor points* option. Otherwise, all of the segments will have an anchor point in the same location

as the original text object. The following illustration shows how the anchor points are positioned differently with this option.



- Then, click on OK and the text object is split into segments (e.g., letters, words, etc.) as specified, with each segment now becoming a separate object within the project.

In the Compo or Synchro Window, you will notice an immediate increase in the number of objects, because of all the new objects that were created for each segment of the original object. These new text objects inherit all of the same dances of the original object, but may be manipulated and changed as single objects as well.

More on Keyframes

This section discusses manipulation techniques of keyframes. As you get more and more familiar with ObjectDANCER, you will gain a more thorough understanding for the importance of a solid understanding of keyframes. With this understanding, creating rich, powerful, and synchronized projects become easier and easier.

Moving Keyframes

You can easily move a keyframe to a new location by dragging the keyframe mushroom along an attribute’s dance bar.

If you drag and move the very first keyframe mushroom of an attribute to the right along the dance bar, but still preceding the second keyframe mushroom, the object will still take on the first keyframe value at the beginning of the object’s life, even though it is not positioned at the beginning of the dance bar. Before the first

keyframe, the value of the attribute is the same as the first keyframe; after the last keyframe, the value of the attribute holds the last keyframe value.

Keyframes Outside the Object Lifespan

ObjectDANCER allows you to create keyframes outside of an object's lifespan range. When creating a keyframe outside of the object lifespan range, the bar will appear lightened between the end of the object lifespan and the new keyframe outside of the keyframe. Such a keyframe will not be visibly or audibly animated within your project, unless the object's lifespan were to be increased to include it; still the keyframe outside of an object lifespan still maintains its effect, and exist as a component of the project file (until deleted).

Duplicating Keyframes

Suppose you have an object that starts its life at a 0° rotation, rotates to 58° by adding a second keyframe, and you then want to rotate the object back to 0° again. One way to make the 0° rotation change would be to duplicate the first keyframe that establishes the 0° rotation initially. By holding down [option] while dragging on the 0° rotation keyframe mushroom along the dance bar beyond the 58° keyframe, upon releasing the mouse button and [option], you will have a duplicated 0° rotation keyframe in the new location.

You can also duplicate a group of keyframes, like an established dancing pattern that you have created: hold down [shift] while selecting the keyframes you wish to duplicate, then press [option] while dragging the group of keyframes to a new location along the dance bar. Upon releasing the mouse button, the group of keyframes are duplicated in the new location with the same spacing between the keyframes as the original keyframes.

Finally, you can easily select all keyframes for duplication by clicking on one keyframe and then pressing ⌘A (i.e., “select all”). All keyframes along the dance bar are selected. Press [option] while dragging the group of keyframes to a new location along the dance bar, and upon releasing [option], the keyframes have been duplicated.

Keyframes Locked or Adjust Left or Right

If you change the size of an object's lifespan by dragging on either end of an object lifespan bar, the existing keyframes positioned on the object's lifespan

(notice the keyframe tags on the object lifespan bar) are automatically locked in place, and will not shift as you expand or decrease the size of the object's lifespan. You can tell that the keyframes are locked because a small "lock"  appears over the keyframe tags on the object's lifespan bar as you are changing the object lifespan size.

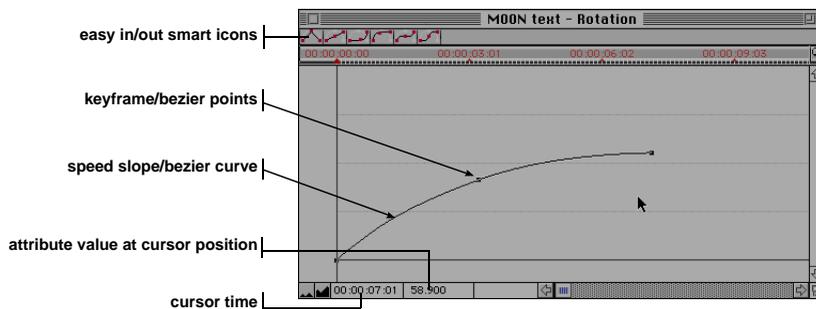
If you hold down [control] while dragging on either end of an object's lifespan bar, the existing keyframes will move to the right or left (depending on whether you drag the lifespan bar to the right or left) by the exact amount of time that the lifespan bar was expanded by. A small right  or left  arrow appears over the keyframe tags, indicating the direction of the keyframe alignment.

If you hold down [option] while dragging on either end of an object's lifespan bar, the existing keyframes are distributed the exact amount of time that the lifespan bar was expanded by. A small double arrow  appears over the keyframe tags.

Speed between Keyframes

You can control the speed between keyframes for all continuous-valued dances within your animation. By quickly double-clicking, then pausing, on the gray dance bar of a particular object's attribute within the Synchro Window, a graphical illustration of the speed between keyframes is displayed, as shown in Figure 5-11.

Figure 5-11 Speed between Keyframes



The specific components of the Speed Variation Window are described as follows:

keyframe/bezier points The bold black points along the speed slope indicate keyframes within a particular attribute's dance. The time location of each keyframe

point is directly aligned with the time location of the corresponding keyframe mushroom along the attribute's gray dance bar within the Synchro Window.

speed slope/bezier curve The sloping of the connecting lines represents the speed between any two points, or keyframes. The steeper the slope of the line, the faster the speed between two keyframes. The flatter the slope of the line, the slower the speed between two keyframes. The distance between any two keyframe points along the speed slope directly correlates with the distance between the corresponding keyframe mushrooms along the attribute's gray dance bar within the Synchro Window.

The easiest and most consistent way to edit the bezier curves is to use the smart icons at the top of the Speed Variation Window. Through using these short-cut icons, you are guaranteed smooth transitions between changes because the changes are “eased in and out”, or gradually accelerated/decelerated between changes.

Otherwise, the speed slope/bezier curve can be manipulated with the same tools and keystroke commands that used to manipulate an object's path/bezier curve. By dragging on either of the tangent endpoints, you can skew the curve in any direction. By dragging the center bezier point, you can move the curve up and down, and (for all dances except position) you can also move the curve left and right. (Refer to “Editing the Curve with Bezier Points” beginning on page 73 for more details on manipulating bezier curves.)

attribute value at cursor position This is the value of the attribute at the cursor position.

cursor time This time value represents the time location of the cursor, relative to the beginning of the attribute's life (i.e., 00:00:00:00). As you move the cursor horizontally within the Speed Variation Window, the cursor time is adjusted to display the current time at any particular cursor position.

Controlling the Speed

You can adjust the speed, making the speed slope steeper or flatter, by dragging the keyframe points vertically up or down, or horizontally to the left or right. When you make horizontal keyframe changes, keep in mind that you are also moving the keyframe time positions within the animation. Notice how the keyframe mushroom moves along the attribute's keyframe/dance bar (within the Synchro Window) when you move the keyframe point horizontally (left or right) within an

attribute's Speed Variation Window. The speed slope is also adjusted, distributing the speed evenly relative to the slope, between the two points.

You can also add additional keyframe points along the speed slope, just as you would add a bezier point while editing an object's path. Use the same tools and keystroke commands that you would use to edit object paths to modify the speed slope (i.e., Hub tools, Synchro Window attribute lists). Just remember, that for every bezier point that you add or change in an attribute's speed slope, a corresponding keyframe in the attributes's gray keyframe/dance bar is consequently modified.



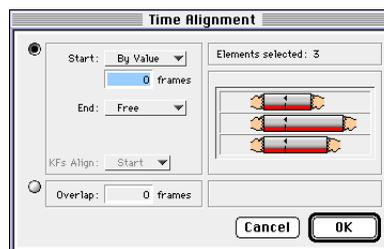
Note

You can open up as many Speed Variation Windows simultaneously as you want, so you can see how your changes to the keyframes' speed affects other dances and objects, real-time, within the Compo or Synchro Window.

Time Alignment

Through the **Time Alignment** command on the *Arrange Menu*, you can align two or more object lifespan bars in your project. Click on the object lifespan bars you would like to align while holding down [shift], then select the **Time Alignment** command (The **Time Alignment** command will not be highlighted if two or more object lifespan are not selected first.). The following dialog box appears.

Figure 5-12 Time Alignment Dialog Box



You can align the object lifespan bars so they all start (i.e., left side) and/or end (i.e., right side) at the same time, or they are stepped in equal increments, or when one object lifespan ends, another one begins, or their start and/or end times

overlap. By selecting and inputting different combinations of settings within the Time Alignment window, the illustration on the right side of the window is modified to show how the setting would be implemented.

These illustrations are conceptual only: the number of bars in the illustration do not necessarily match the number of lifespan bars that you have selected, and the incremental step positioning is not an actual measurement of the step as inputted in the settings. Nonetheless, they are a good guides to show how the bars will be aligned or configured relative to your inputted settings. The following sections describe the settings in more detail.

Starts/End Establishes at what time the starts or ends of the lifespan bars will be aligned, if aligned at all.

- *Free* - the positioning of either the start or end are left “free” or untouched; a specific value is not applied.
- *Lock* - the starts or ends will be locked, as specified, and remain unchanged. The handles are not locked permanently, but rather only while implementing the time alignment.
- *By Value* - you can input a specific time to position all starts or ends of the selected lifespans. If you have a positive or negative time value, the starts or ends of the lifespans will be stepped in equal increments or decrements, respectively, by the time indicated.

**Note**

If the object lifespans’ starts are already aligned at 00:00:00:00 time position, and a negative time value is inputted in the *Time value* field, an error message will appear, disallowing such an alignment because there is no available time to decrement the object lifespans. If you drag the selected object lifespans to the right a little, to allow space, then you will be able to decrement step the lifespans.

KF Align This option, available for input only when both the object lifespan starts and ends are being aligned, will equally distribute the keyframes within the objects’ lifespans.

- *Start* -This option distributes the keyframes from the starts (left side) of the objects’ lifespans.

- *End* - This option distributes the keyframes from the ends (right side) of the objects' lifespans.
- *Life* - This option stretches the keyframes to proportionally be distributed within the objects' lifespans.

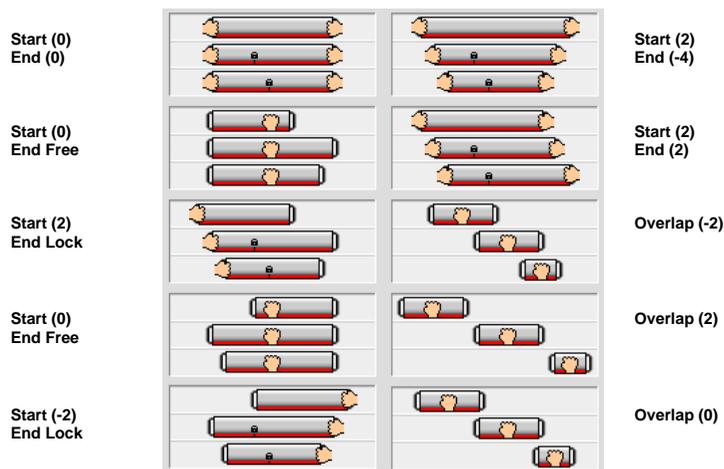
within the object's dance bars. The keyframe alignment options are described as follows:

Overlap Allows the starts or ends of the selected lifespan bars to overlap by a specified amount of time.

Elements selected Indicates the number of object lifespans that are selected for alignment, which is not related to the representation in the graphical representation beneath this value. The graphical representation is conceptual only.

Figure 5-13 illustrates a number of sample alignments to give you an even better feel for how to set the Time Alignment settings. The best way to truly understand time alignment, however, is through trial and error within a test project. After inputting only a few different time alignment configurations, you will quickly be able to see how the object lifespans are aligned relative to one another (and remember, you can always use the **Undo** command if you input the wrong alignment values inadvertently).

Figure 5-13 Time Alignment Scenarios



Keep in mind that when a value is inputted, the graphic is conceptual only, showing the layout of the objects' lifespan bars, not the actual incremental spacing as specified by the inputted value (if any). Similarly, the representations of *Lock start/end* setting, as depicted in the illustrations, are not depicting the actual positions of the bar ends (or starts), but rather just that the starts or ends are locked in their current positions, whatever those positions might be.

Object Lifespans Beyond the Synchro Window Viewing Area

To view object lifespans and dance bars that extend beyond the Synchro Window's viewing area after setting a new time alignment of some object lifespans, you can maneuver the screen to view more of your project. These mechanisms become very useful when your project becomes complex. The following are a few alternatives to adjust your Synchro Window's viewing options:

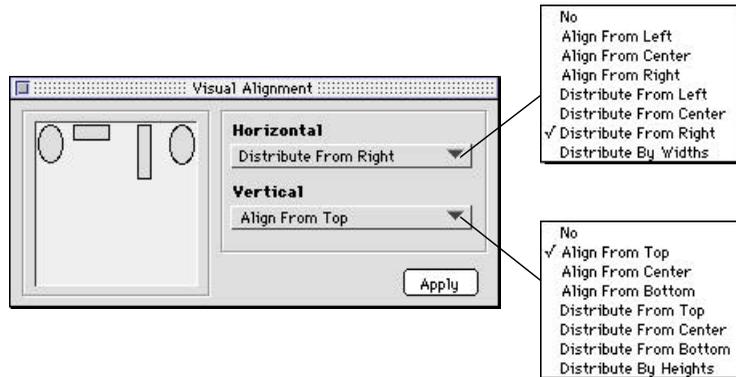
- *Click on the scroll bars* on the right-hand side of the screen, or at the bottom of the screen. By dragging on the scroll bars, you can adjust the Synchro Window's viewing area.
- *Click and hold the mouse button down on the window size box* to drag the window to be larger (or smaller) and to allow more dance bars to be displayed when the Synchro window objects are expanded.
- *Click on the zoom tool* to increase the scale ratio of the Synchro Window. When you increase the horizontal scale ratio, even though you can view a longer duration of time, your object lifespans will appear smaller due to the larger view ratio, making keyframe edits more compacted as well. To decrease the horizontal view ratio, press [option] while clicking on the zoom tool.
- *Use the hand tool* as an assimilated scroll mechanism, similar to the scroll bars. With the cursor in the Synchro Window, hold down the [space bar] and the mouse button. When your cursor changes to a fist 🦊, you can scroll the window area inside the Synchro Window any which way you want—up, down, left, or right, as needed.

Visual Alignment

The **Visual Alignment** command allows you to align selected objects amongst one another within the Compo Window. When you select this command from the

Arrange Menu, the following palette is displayed. Figure 5-14 also includes the horizontal and vertical pop-up menus look (when opened).

Figure 5-14 Visual Alignment Palette



This palette is quite powerful in itself, and very easy to use because for every horizontal or vertical alignment option or combination of options, the graphical display on the palette is adjusted with a conceptual image of how the objects would be aligned. You can align two or more selected objects within the Compo Window (if you try to align only one object, the “Apply” button is disabled). Also, because this is a palette, you can keep the palette open on your desktop at all times while working.

Before applying a visual alignment, select different combinations of the alignment options until you achieve the placement that you are looking for. The term “distribute” among the various options means that the positioning would be distributed evenly between the different selected objects and relative to where the objects are being distributed from (i.e., top, bottom, right, left, center) within the Compo build window. For example, the horizontal option “Distribute from center” will distribute all the objects’ center points evenly across the Compo Window, but without regard for the objects’ different sizes. If an object is significantly wider than another within the alignment selection, the objects may end up overlapped. “Distribute by widths” might be a more appropriate selection for this type of scenario because this option takes into account the varying widths of the selected objects, and distributes the objects’ space between each other so the spacing is evenly distributed between each other regardless of object size.

Audio Synchronization

You can synchronize audio objects' patterns with other dancing objects within your project, such as graphics or text, using one of ObjectDANCER's Audio Marking Windows. Through these windows, you can play an audio file, select shortened segments of an audio file for playback within your project, loop a certain segment of an audio file, or add markers to synchronize your audio with other objects within your project.

Since ObjectDANCER supports different types of audio files (i.e., AIFF, WAV, and MIDI), there are also different types of Audio Marking Windows for synchronizing the different types of audio within your project. After importing an audio file, the format of the file is easily identified in your project through an audio object icon located to the left of audio object labels in the Synchro Window. An AIFF or WAV audio object's icon looks like this: . An imported MIDI file's icon looks like this: .

Digital Audio or MIDI files

Generically referred to as digital audio, AIFF (Audio Interchange File Format) or WAV files have a very different format than MIDI (Musical Instrument Digital Interface) files, which is why these filetypes are treated separately.

Digital audio is an actual representation of sounds that are stored as thousands of individual numbers, known as samples. Its graphical representation looks like waves across a screen, where the high and low parts of the waves represent the different pitches in the playback of the audio. When there are two wave streams, the audio was recorded in stereo channel; a single wave stream indicates that the audio was recorded in mono channel. Digital audio data, once recorded and saved, will playback with the same recorded quality, and on most audio devices.

MIDI files, on the other hand, include a list of time-stamped musical chords with the sounds coming from either different computer generated instruments, or real instrument samples, depending on the recording or playback device. Although the quality of MIDI files largely depends on the recording and playback devices, MIDI files can often be very high quality, with complex and impressive sounds, while requiring significantly less memory and having very low bandwidth on the Internet, compared with digital audio.

The following table describes the pros and cons of using digital audio or MIDI files in more detail. Regardless of your choice, ObjectDANCER supports both formats.

Table 5-1 Pros and Cons of Digital or MIDI Audio Files

Audio File Format	Pros	Cons
MIDI	<ul style="list-style-type: none"> • Compact file sizes which are completely independent of playback quality (i.e., 200 - 1000 times smaller than CD-quality digital audio). • Low RAM and hard drive impact. • Sometimes higher quality than digital if recording and playback device is high quality. • Able to change the length of file without changing pitch or quality. • Very precise editing abilities (i.e., possible to edit down to an individual note). • Easy to learn musical notes and rhythms because of color coded graphical representation. • Low bandwidth on Internet. • Stereo and mono MIDI files are about the same size files. 	<ul style="list-style-type: none"> • Musical audio only; no spoken dialog. • Device dependent: playback on MIDI compatible devices only (e.g., MacOS, PCs with an installed sound card, etc.).
digital audio (AIFF or WAV)	<ul style="list-style-type: none"> • Consistently has very high playback quality, regardless of playback device. • More popular for multimedia productions due to reliable quality. • More cross-platform applications support digital audio. • An understanding of musical theory is not necessary. • New compression processes are continually being developed. 	<ul style="list-style-type: none"> • Cannot edit musical components of a composition, as you can with MIDI. • Very large file sizes. • Heavy RAM, hard drive, and CPU impact. • Stereo files are about twice the size of mono files.

Audio Marking Windows

Audio Marking Windows are provided so you can add audio markers at certain points during an audio's playback, which can later be synchronized with different object dances within your project. The Audio Marking Windows for the different audio file formats are fairly close in features, except in three ways:

- The graphical representations of the audio sampling sequences are very different: digital files (AIFF or WAV) are represented with wave-like formations across the window. MIDI files are represented with line segments that are color coded for different musical instruments, and different lengths for the playtime duration of each instrument.
- Digital files can be “scrubbed”, meaning that by dragging your clicked mouse button in the audio sampling window as slow or fast as you want, you can manually play, or scrub, the audio. This mechanism is very useful when attempting to add very precise markers to your audio file for synchronization with other objects in your project.

By double-clicking on an audio object's icon or object lifespan bar, a window similar to Figure 5-15 or Figure 5-16 will be displayed, depending on whether you are opening a digital AIFF or WAV audio object  , or MIDI audio object  , respectively.

Figure 5-15 Digital Audio (AIFF or WAV) Marking Window

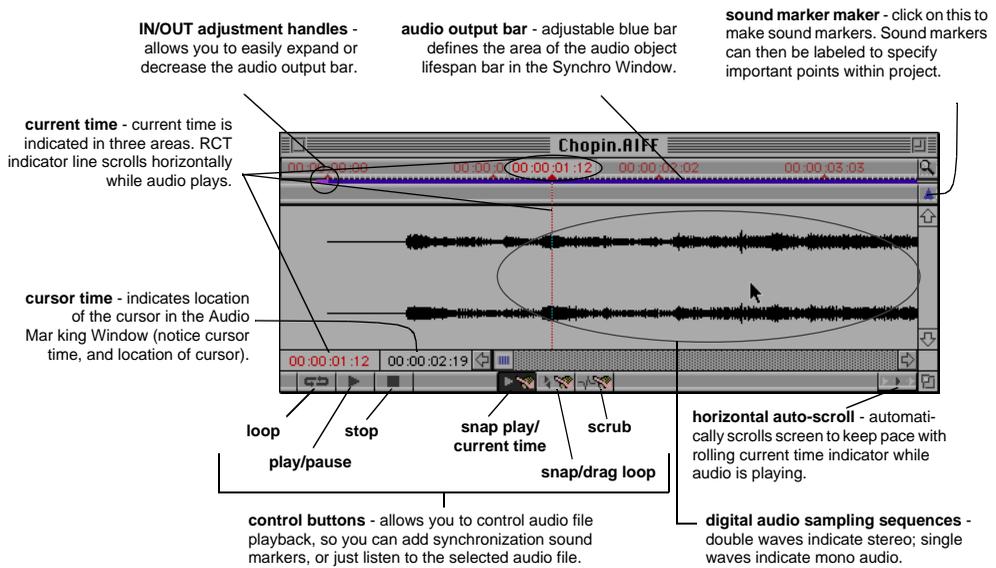
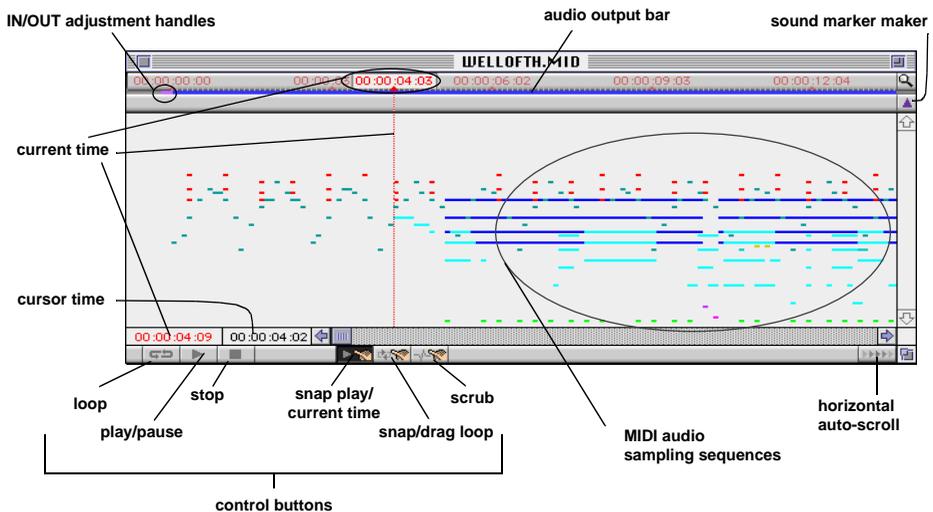


Figure 5-16 MIDI Audio Marking Window



The different components of the Audio Marking Windows are described in more detail in the following sections.

current time The current time in the Audio Marking Windows is conceptually the same as the current time in the Compo and Synchro Windows. Within the Audio Marking Windows, the current time represents the actual time of playback of an audio at any given time (or the actual time the audio was paused or stopped, as the case may be).

The current time is reflected in three different places in the Audio Marking Windows:

- As the RCT indicator line that scrolls throughout the play window while an audio is playing.
- In the red current time timestamp just above the RCT indicator in the upper ruler.
- In the red numerical time just above the control buttons bar.

cursor time The cursor time reflects the horizontal location of the cursor, as measured by the upper time ruler within the Audio Marking Windows.

sound marker maker This tool is for marking significant audio points in your project that you may want to use for synchronization with other objects in your project. These markers show up also along an audio object's lifespan bar within the Synchro Window for future synchronization efforts.

The sound marker maker works very similar to the *timing marker maker*, except that you can set sound markers “on the fly” as well. This mechanism is especially appreciated when attempting to mark very precise moments in an audio. The following bullets describe different ways that you can manipulate blue sound markers in more detail:

- *To add a blue marker “on the fly”* as an audio is playing, hit the [space bar] and a marker will be added just below the timeline ruler in the upper portion of the Audio Marking Window. The new marker is placed in the location of the RCT indicator at the time that the [space bar] is hit.
- *Another way to add a blue marker* is to drag the RCT indicator along the gray timeline bar to where you want to place the new marker, and then click on the sound marker maker icon.
- *To move a blue marker to another location*, drag it along the gray timeline bar to a new location. Since the markers are automatically numbered, if you move the first marker to the end of a row of markers, all the markers will be renumbered to remain sequential.

- *To add brief annotations to a blue marker*, double-click on a positioned blue marker. When the black highlight shows in the upper gray bar, type in a brief annotation. To close the annotations, click on the marker again, or click anywhere else within the window and press [return].
- *To quickly jump the RCT indicator to a marker location*, regardless of whether the audio is playing or not, either:
 - Click on any positioned blue marker, and the RCT indicator snaps in alignment with the blue marker, or
 - For markers from 1 to 9, enter the number and the RCT indicator snaps to the numbered marker location. For markers greater than 9, enter the number while holding down [shift]. Upon releasing [shift], the RCT indicator snaps to the numbered marker location.
- *To select a specific marker* among multiple positioned markers, click and hold the mouse button down on the upper gray bar. A list of positioned markers will be displayed; select the marker you want, and the RCT indicator will quickly jump to it.
- *To delete a positioned blue marker*, click and drag the blue marker out of the gray bar area, and it will disappear. If the RCT indicator is aligned with the blue marker when you are trying to delete, drag the RCT indicator out of the way before trying to delete the blue marker.

audio output bar The audio output bar is an adjustable blue bar which defines the area of the audio object's lifespan bar in the Synchro Window. For example, suppose you have a 50 minute audio file, and your project is only 30 minutes. By decreasing the length of the audio bar to 30 minutes of the total audio, only the audio segment within the specified 30-minute range will be played (although your project will still hold in memory the complete audio file).

- *To adjust the duration (length) of the audio output bar*, drag on the purple IN/OUT adjustment handles to the desired duration. As you drag on the left or right ends, the cursor changes to  or , respectively.
- *To adjust the location of the audio output bar* (which may be different than the beginning of the gray timeline ruler), drag on the middle of the bar; the cursor will change to  as you drag the bar to a new location along the gray timeline ruler.

IN/OUT adjustment handles These purple handles at the ends of the audio output bar allow you to adjust the duration (length) of the audio output bar. By

dragging on either handle, you can expand or shorten the range of the bar. The cursor changes to  when dragging the IN handle (left-most handle); the cursor changes to  when dragging the OUT handle (right-most handle).

control buttons The control bar buttons collectively allow you to manipulate your audio file's playback so you can add synchronization sound markers, or even just listen to the selected audio file.

 **loop button** By clicking on this button, you can play the audio file over and over again, in a continuous loop. This is useful when you are adding markers “on the fly” by pressing the [space bar] to add a marker, and you want the music to play through first to add the markers, and perhaps again to double-check the placement of the markers. Once the loop button is selected (highlighted), the audio file will continue to play in this mode until it is turned off. Click on the loop button again to deselect/unhighlight it.

 **play/pause button** This toggle button between Play and Pause allows you to begin playback of an audio file from wherever the current time is located, and then Pause the playback when desired. To play again after the audio has been paused, click on the Play button again.

If you Pause the audio, even though the Loop Play button is highlighted, the audio will remain paused until you resume the playback with Play.

 **stop button** This button halts an audio file's playback that has been previously started with Play, and returns the current time to the beginning of the audio.

 **snap play/current time** When this button is highlighted/activated, you can play the audio from any location in the audio playback window. Hold your mouse button down at any location in the audio playback window, and the audio will play from that location. Upon releasing the mouse button, the RCT indicator will jump to that location.¹

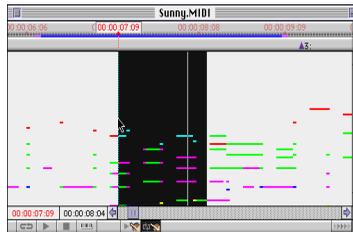
You can also use this feature to snap the current time within the audio playback window to any location that you want by clicking at any location. The RCT indicator snaps to the location. If you subsequently want to play the audio from that location, click on the Play button.

1. Anytime you drag the cursor over the audio playback window, the cursor is changed to .



snap/drag loop When this button is highlighted/activated, you can play small excerpts of an audio file in a loop. By holding your mouse button down at any location within the audio playback window, the RCT indicator snaps to that location, and an excerpted portion of the audio file is highlighted, and begins to play in a loop. The current time of the loop playback highlighted area is indicated by a moving white line which loops within the highlighted area as long as you hold your mouse button down. Figure 5-17 illustrates the snap/drag loop feature.

Figure 5-17 Snap/Drag Loop Highlighted Excerpt Example



You can drag the highlighted selection to find a specific part of an audio; or, you can unclick, then click in a new area of the audio, and the highlight (and RCT indicator) will snap to the new location.

To increase or decrease the highlighted loop selection, while your mouse button is unpressed, hold down the [shift] key and drag the highlighted area to a desired size.



scrub button This button, which is available only in digital Audio Marking Windows (AIFF or WAV files), allows you to manually play the audio by dragging the cursor with your mouse button pressed as slow or fast as you want. The audio will sound muffled, but audible and recognizable, as you scrub, or manually play it. This mechanism is very useful when attempting to find a precise location in your audio so you can add an sound marker for synchronization with other objects in your project.



horizontal auto-scroll This button allows your play window to follow along with the red current time indicator as it scrolls horizontally during playback. Without this button highlighted, the audio still plays, but the red current time indicator scrolls horizontally out of the playback window's range.

Chapter 6 ●

Final Steps

Congratulations! If you have gotten this far in your project effort, you truly have entered the final steps, the point at which all your time and effort—your animation—will finally come to life in a movie.

This chapter discusses the output functions, ranging from showing a basic preview before creating a movie, to printing a scene from your movie, and everything in between. ObjectDANCER gives you several options on how to output your animation: QT movies, including GX or sprite movies, JAVA animations, and animated GIFs.

All output settings that you establish on a project are saved as part of the project definition, and so therefore each project's output options need to be carefully selected.

Options...

Through the **Options...** command on the *Output Menu*, you have a number of final decisions to make regarding your project and how you would like it to be output, and depending on the type of output that you select. There are four sub-menus, which are described in further detail directly following this short section:

- *QT Compression...* - includes QuickTime compression algorithms to allow our project to run more efficiently.
- *GIF...* - Includes specific parameters and settings for outputting animated GIFs.

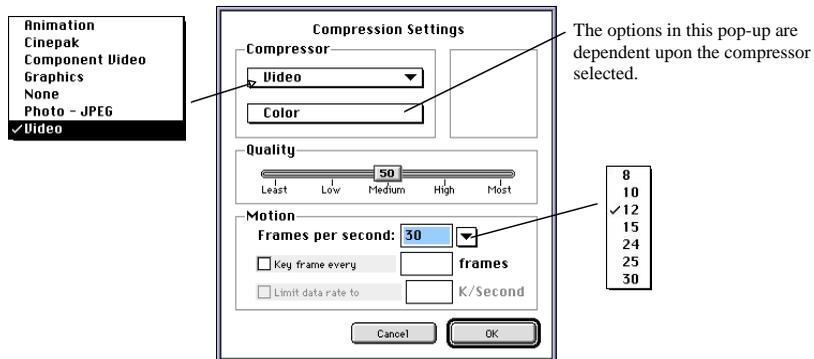
- *JAVA...* - Includes specific parameters and settings for outputting JAVA animations.
- *Audio...* - Includes specific parameters and settings for an project that includes an audio component.

QT Compression

The first step before outputting you final project is to evaluate which QuickTime compression algorithm will work best for the type of production that you are creating. Selecting the best movie compression mechanism, or codec, is one of the most crucial parts of your animation authoring effort.

Codecs, defined simply, allow your movie to be compressed in size while stored, and then quickly decompressed “on the fly” during your movie’s playback. To access the QuickTime compression mechanisms, select the **Options...** command on the *Output Menu*; click on the settings... button, and the following dialog box is displayed.

Figure 6-1 QuickTime Compression Window



Selecting the right codec for your movie can mean the difference between smooth playback or sluggish broken playback, high quality images or blurry poor quality images, reasonably sized movies or very large memory consuming movies.

Although there are no established formulas or firm rules to tell you which compression mechanism will be the best for *your* project, since much depends on the varying elements that make up your project, the following discussion offers at least a few guidelines to work by.

The compression schemes included with ObjectDANCER are standard software-based QuickTime Compression schemes¹. These codecs are: *Animation*, *Cinepak*, *Component Video (YUV)*, *Graphics*, *Photo - JPEG*, and *Video*. Even though these codecs are standard, the final output of different compressed project movies created with different compression schemes vary dramatically. Different types of media in your projects will cause mixed results with the different compression mechanisms, and often different projects have very different levels of acceptable compression requirements. Because of all these variances, there are multiple codecs required for compression.

In general, the codecs differ in their compression ratios, and in the degree of preserved image quality levels. Compression ratios equate to the size of an original image divided by the size of a resulting compressed image. Typically, the higher the compression ratio is, the lower the quality of the decompressed image will be. If very high quality images are required, the cost is accrued in significantly slower compression and decompression time, as well as having a high memory impact.

The supported different compression schemes are compared in Table 6-1:

Table 6-1 Comparing QuickTime Compression Schemes

codec	Description	Recommended Usage
None	<ul style="list-style-type: none"> • No compression. • Images and quality remains untouched. • What you see is what you get. 	<ul style="list-style-type: none"> • When you have <i>plenty</i> of memory • When you need the best quality.
Animation	<ul style="list-style-type: none"> • Based on RLE (Run Length Encoding). • Generally operates in a lossless mode: it preserves the original data completely with no degradation. • Compression ratio is 2:1 or better. 	<ul style="list-style-type: none"> • Good for animated graphics without photo-realistic images. • OK for informal movies, when settings are set high.

1. You can also use hardware based codecs if you have a hardware compression board installed on your system. Keep in mind, however, that if you use a hardware codec, you will probably limit your audience, since playback devices must have the same hardware codec installed.

Table 6-1 Comparing QuickTime Compression Schemes (continued)

codec	Description	Recommended Usage
Cinepak ¹	<ul style="list-style-type: none"> • Better capabilities in image quality, playback size, frame rate and digitized video compression compared with the Video compressor. • Extremely slow compression rate, but that which is made up for with a very good decompression speed. • Can easily provide frames sizes of 320x240 pixels with a frame rate of 24 frames per second. 	<ul style="list-style-type: none"> • Excellent quality for 16-bit or 24-bit productions. • Use for your <i>final</i> production, but not recommended for interim versions because of extremely slow compression rate. • Most common codec used for high-end professional productions, like retail CD-ROMs, sales videos, etc.
Component Video (YUV)	<ul style="list-style-type: none"> • Stores data in YUV 4:2:2 format. • Extremely high quality with a compression ratio of 2:1. 	<ul style="list-style-type: none"> • Useful for certain video input productions. • Also used as an intermediary storage format when applying multiple effects or transitions to an image.
Graphics	<ul style="list-style-type: none"> • Similar to Animation codec, except optimized for 8-bit graphics. • Accelerated compression speed, but a reduced decompression speed. 	<ul style="list-style-type: none"> • 8-bit still images, at best, because of very slow decompression.
Photo-JPEG	<ul style="list-style-type: none"> • Maintains very high quality images image through decompression, although slow. • Compression is slow as well., but for small photo-type clips, this rate is acceptable. 	<ul style="list-style-type: none"> • Fixed images or digital photography. • Slide show-style movies, at best, although the image quality and compressed file size is very good.
Video	<ul style="list-style-type: none"> • Most common QuickTime codec (along with animation). • Decent compression image quality, file size, compression and decompression rates. • Good playback at a rate of 15 frames per second in a 160x120 pixel window. 	<ul style="list-style-type: none"> • Relatively good all-around codec for capturing natural video images.

1. Prior to QuickTime 1.6, CinePak was known as “Compact Video”.

By selecting a Compressor type within the Compression window, the **Quality** and **Motion** values are automatically adjusted appropriately to the particular chosen Compressor. It is recommended that you test the different types of compressors

since different compressor schemes can vary dramatically given different media types that comprise your movie.

Selecting Color Depth Just below the compressor choices on the QuickTime Compression dialog box is a color depth pop-up menu. The available options in this pop-up menu vary with the different selected compressors.

However, since your selection in this area ultimately affects how your movie is compiled, putting a bit of thought into this selection is worthwhile. As a general rule, select a color depth option based on what the primary playback displays can take advantage of (if you have this information). For example, if your audience will definitively be working with 8-bit monitors (256 Colors), it makes absolutely no sense to select a color option any higher than that, such as “Thousands of Colors” or “Millions of Colors”. Save these options for television-types of media, or high-end professional productions, respectively. The audience will gain no benefit from a higher selection, and if anything, a higher unused setting will only adversely affect the performance of your movie in other areas.

Quality Slide Ruler Establishing efficient compression settings is a difficult goal to achieve since you will always be trapped in the desire for high quality images without high overhead demands. Unfortunately, this desire is pretty close to a dream, since reality holds that the higher the quality of preserved image quality, the larger your movie’s file size will ultimately be. Furthermore, even if you can tolerate memory intensive files, such files still might have impeded playback cycles.

Although you could certainly benefit from testing different settings within the Quality Slide Ruler if you have the time, keeping the ruler setting in the mid-range is probably going to provide you with the most reliable results. In fact, often the difference between a high quality setting and a medium setting will only be noticeable in file size, not image quality (again, depending on the codec used). Often sliding the ruler to extremes, such as the “Least” and “Most” settings, does not provide you with the extreme compression savings or quality improvements, respectively, as you may expect.

Frames Per Seconds Setting the Frames Per Seconds value, otherwise known as *frame rate*, should also be geared towards your audience, and the types of machines that your movie will be run on. As a general rule, if your audience is wide, and your production will be played on multiple types of machines, 15 fps is probably a suitable rate for most machines, while not including too much overhead.

If your production is higher end though, using 25 or 30 fps is probably more appropriate because chances are the playback machine will also be higher end, with a faster CPU, hard drive, CD-ROM speed, color depths, etc. Choosing a high rate when you know your production will be played back on lower end machines, however, only unnecessarily increases the file size, and compression and decompression time with no visible benefit to the production.

Again, the best way to select the right frame rate setting for your movie is by trial and error. If you select 15 fps, and compile your movie, and it appears too jerky or sluggish, try again with a higher setting until you reach a setting that is satisfactory to you. It is only important that you start out slow, and gradually increase, instead of the other way around, so you can adjust only to the appropriate speed level, not beyond.

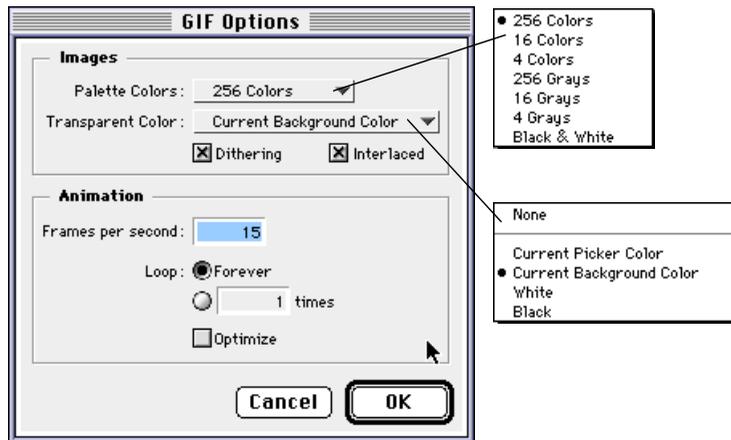
Key Frame Setting This setting is for compressing changes between keyframes in your project. The way it works is that the first keyframe read, reads all pixels, but every keyframe thereafter only reads the changed pixels from the change before. To select a value to input here, again trial and error is the best choice. A good general purpose setting is 12 fps, and then you can adjust the value from there after a trial or two. Depending on if your project is highly animated or relatively constant, adjust your keyframe setting to be higher or lower, respectively. The higher the value, the higher the quality, but also the lower the performance and larger the file size.

Limiting the Data Rate This option, which is highlighted only when the Cinepak (or other codecs that support this feature) codec is selected, is a useful option to constrain the data rate of your final movie to a value acceptable for CD-ROM playback, such as a value of 90 to 100K/second. If you are not concerned with accommodating older and slower CD-ROM devices, enter a value of 180 to 250K/seconds. If your movie has sound, you may want to increase this rate even more, to like 150 or 300, respectively, depending on the target audience.

GIF Options

If you are creating an animated GIF, you will want to evaluate the **GIF...** options available through the **Options...** command on the *Output Menu*; as displayed in Figure 6-2.

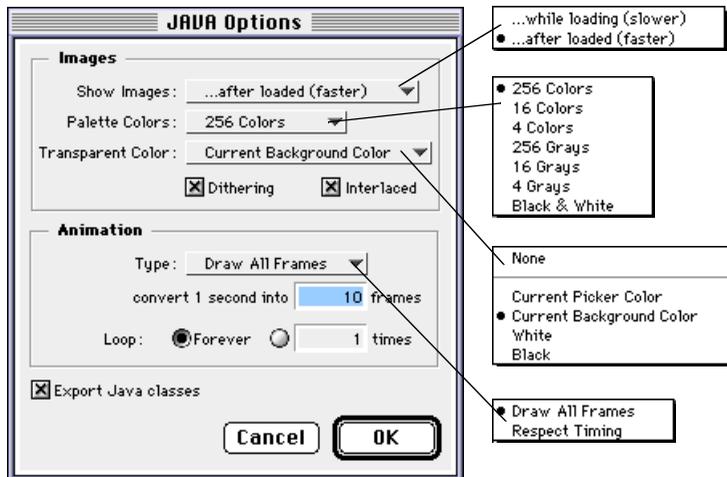
Figure 6-2 GIF Options Dialog Box



JAVA Options

If you are creating a GIF animation, you will want to evaluate the **JAVA...** options available through the **Options...** command on the *Output Menu*; as displayed in Figure 6-3.

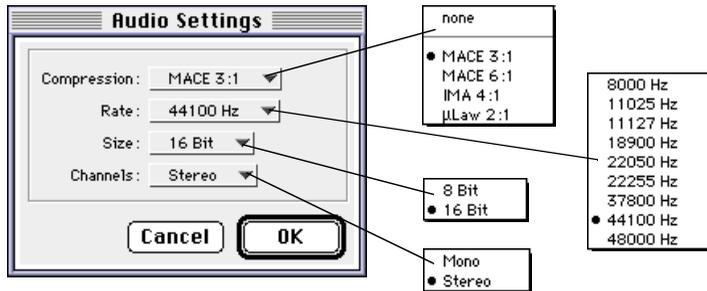
Figure 6-3 JAVA Options Dialog Box



Audio Settings

If you have a project that contains an audio object(s), then you will want to evaluate the **Audio...** settings available through the **Options...** command on the *Output Menu*; as displayed in Figure 6-2.

Figure 6-4 Audio Settings Dialog Box



sample size pop-up This setting captures the audio resolution of your audio. It can be set to 8-bit or 16-bit, whereby 8-bit sound is similar to tuning in to an AM radio channel, and 16-bit sound is CD-quality. In selecting the sample size for your audio, consider your audience's playback mechanism. 16-bit sound is supported by most Macintoshes these days, but non-Macintosh equipment may require additional hardware to support 16-bit sound (or sometimes the mechanism will automatically playback a 16-bit audio at 8-bit quality). On the Macintosh, 16-bit playback requires Sound Manager 3.0, which is already installed on PowerMac machines, but not necessarily lower-end machines. 16-bit quality also consumes more memory, of course.

sample rate pop-up Use this pop-up to determine how many sound samples per second that you want to the audio playback at. The higher the selected rate, the better the quality of the sound. On the other hand, the higher the selected rate, the heavier the audio is on memory.

channels pop-up This pop-up menu allows you to set mono or stereo channels for your audio. If your project is intended for playback on a stereo system, with at least two speakers, then stereo sound is certainly the way to go, despite its heavier demand on memory. If the playback machine is anything less, then do not bother with stereo. Without two speakers, the audience will not be able to hear the difference, so you might as well save memory and select mono.

A key thing to consider when establishing your audio settings is the significant amount of space required for audio. Audio files tend to be very large in size, no matter what. Table 6-2 lists typical memory usage required for a one minute audio clip saved at different quality levels.

Table 6-2 Storage Requirements for Digital Audio at Standard Sampling Rates

Sample Rate	Sample Size	Channels	approx. bytes for one minute	Notes/Usages
44.1 kHz	16-bit	Stereo	10.6 MB	CD-quality
44.1 kHz	16-bit	Mono	5.3 MB	voice-overs
22.254 kHz	8-bit	Stereo	2.7 MB	
22.254 kHz	8-bit	Mono	1.4 MB	
22.05 kHz	16-bit	Stereo	5.3 MB	Darker sounding than CD, but still high quality.
22.05 kHz	16-bit	Mono	2.7 MB	Good for speech recordings.
22.05 kHz	8-bit	Stereo	2.7 MB	OK stereo sound.
22.05 kHz	8-bit	Mono	1.4 MB	TV set sound quality. Good for background music and voice.
11.127 kHz	8-bit	Stereo	1.4 MB	
11.127 kHz	8-bit	Mono	.7 MB	
11.025 kHz	16-bit	Stereo	2.6 MB	
11.025 kHz	16-bit	Mono	1.4 MB	AM radio quality; good for background music.
11.025 kHz	8-bit	Stereo	1.4 MB	At this rate, why even bother with stereo; seems self-defeating at a cost of more memory.
11.025 kHz	8-bit	Mono	.7 MB	Pretty badly muffled.
7.418 kHz	8-bit	Stereo	.9 MB	Stereo is completely ineffective.
7.418 kHz	8-bit	Mono	.5 MB	Sounds like a bad telephone connection.

Make QT Movie

Creates a QuickTime movie out of your project, using the compression scheme set through the **QT Compression** dialog box from the **Options...** sub-menu on the *Output Menu*. Refer to Table 6-1, “Comparing QuickTime Compression Schemes,” on page 101 to evaluate which compression mechanisms would be best suited for your particular project.

Make QT Special

There are two types of QT special movies that should be used under specific circumstances only. They are Sprite movies and GX movies.

Sprite Movie

Sprite movie are basically a movie with a single object and its trajectory saved in a small and simple movie file format. The conglomeration of many sprite movies are then used to create larger productions. Following are some caveats about sprite movies:

- Must be played back through QuickTime 2.1 (or later) only.
- Smaller than a standard QuickTime movie.
- Supports scale, position and visibility changes.
- Does not support rotational changes.

To create a sprite movie, select the **Sprite Movie** command from the **Make QT Special** sub-menu of the *Output Menu*.

GX Movie

A GX movie is a movie that uses a GX codec, and keeps all images in vector format. This type of movie is efficient if your animation is made up of all GX objects; otherwise the following significant caveats follow:

- GX must be installed for playback.

- Non-GX objects (i.e., bitmap images) included in the animation will not get compressed, thus, potentially causing a very large movie to be created if bitmap images exist.

However, if you have an almost predominately GX-based project, this type of movie offers the best quality and compression for this specific scenario.

Make Animated GIF...

An animated GIF... is a very popular output option because of its typically low overhead and easily pleadable into websites. Before creating an animated GIF, however, review the options that can be customly set through the **GIF...** command from the **Options...** sub-menu on the *Output Menu*.

Make Java Animation...

Making a Java animation of your project is to clearly reduce the strength of your project that you built with ObjectDANCER. Said differently, many affects offered by ObjectDANCER are not offered by Java, so these affects are lost when you select the **Make Java Animation...** command. Examples of lost attributes are rotation, transparency, transfer modes, and skewing, and most importantly, audio; although all of these affects are lost in a Java animation, time synchronization is typically respected.

Upon selecting the **Make Java Animation...** command, an HTML file, a sprites folder (including GIF files for each object), an image folder (including animation description files for each object), and a Java classes folder is created (compiled JAVA code for performing the playback of the ObjectDANCER code). Additional JAVA options can also be customly set through the **JAVA...** command from the **Options...** sub-menu on the *Output Menu*.

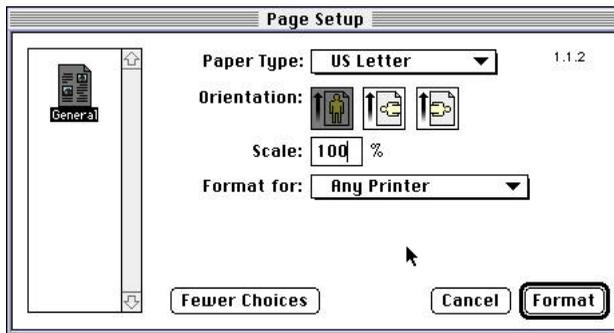
Printing

The Printing options are fairly straight forward, and probably even familiar to you, since they are the standard Print options associated with most applications. If this

is your first time printing with QuickDraw GX, however, you will notice some changes in the dialog boxes, compared with what you may be used to.

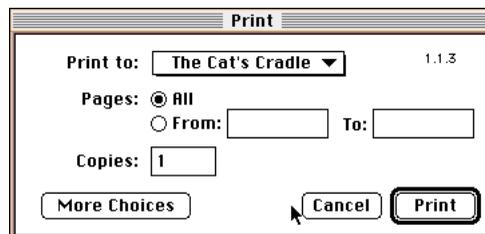
Page Setup This command utilizes QuickDraw GX options to establish the desired page layout for printing your document. The “Paper Type” pull-down bar lists a number of different paper size alternatives, and the **Format for:** pull-down bar lists different printer types to choose from.

Figure 6-5 Page Setup Window



Print... (⌘P) Prints the current view of your project utilizing QuickDraw GX printing options. A dialog box appears with the name of your printer in the **Print to:** field, as in Figure 6-6.

Figure 6-6 Print... Dialog Box

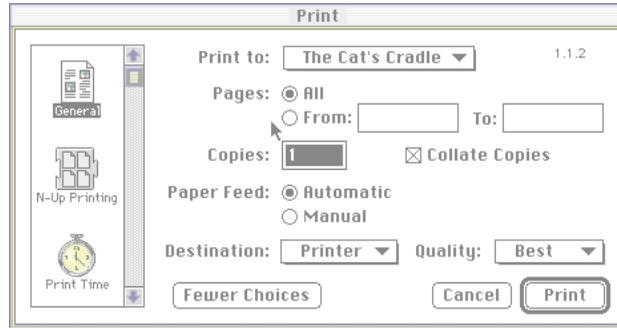


If you click on the **More Choices** button, you get an extended dialog box offering more choices regarding how and when to print your document. Figure 6-7, Figure 6-8, Figure 6-9, and Figure 6-10 illustrates the additional printing options to select from.

With QuickDraw GX, your printing options are expanded in a number of ways. You have the ability to create PDD (portable digital document) files with the PDD Maker. PDD files are similar to PostScript files, whereby all page formats, colors,

fonts, and graphics are retained, except that with a PDD file, you can view these documents on-line by just double clicking on the document icon (assuming that QuickDraw GX is also installed on the viewing machine). To create a PDD file, select **PDD Maker** from the **Print To:** pull-down bar from within the **General** window (Figure 6-7).

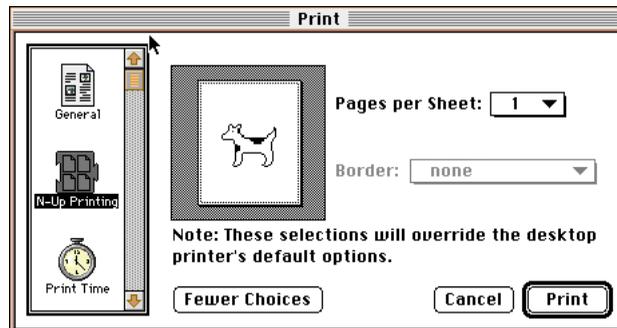
Figure 6-7 Print.../More Choices/General Window



PostScript files can also be created with QuickDraw GX printing utilities. To create a PostScript file, select **PostScript** from the **Destination:** pull-down bar from within the **General** window (Figure 6-7).

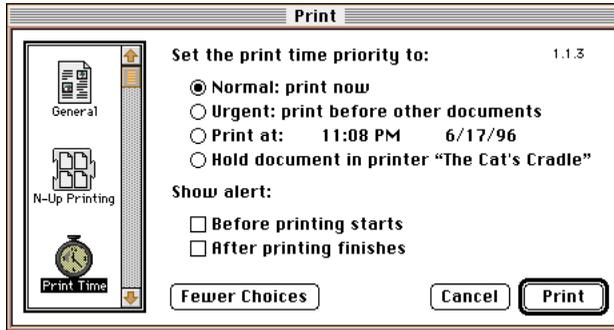
The **N-Up Printing** window allows you print multiple pages on a single sheet of paper. By selecting from the **Pages per Sheet:** pull-down bar, you can select between 1, 2, 4, 6, 9, 12, or 16 pages per sheet.

Figure 6-8 Print.../More Choices/N-Up Printing Window



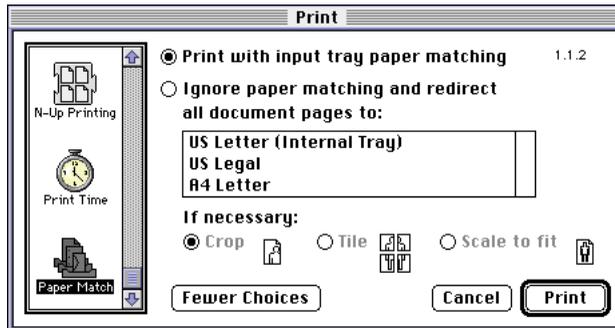
The **Print Time** window allows you to designate a specific time and alerts for printing the document by tagging the appropriate flag.

Figure 6-9 Print.../More Choices/Print Time Window



The **Paper Match** window offers you some options regarding paper types. Select the paper match requirements that meet your project needs.

Figure 6-10 Print.../More Choices/Paper Match Window



Appendix A ●

Keystroke Commands

Given the depth of ObjectDANCER's editing capabilities, it goes without saying how valuable keystroke commands become eventually. Hopefully you will find the following keystroke commands to be as helpful and time-saving as they became for us during development.

Compo Window

- **Duplicate** any object by **[option] drag**
- **Move** selected object(s) 10-pixel(s) by 10-pixel(s) using keyboard **[shift] arrows** (not numeric pad)
- **Constrain** rotation and skew using **[shift]** key
- **Set background color** by clicking on background with **bucket tool**
- **Zoom in** Compo Window using **⌘ +** or **⌘ [space bar]** keys
- **Zoom out** Compo Window using **⌘ -** or **⌘ [option] [space bar]** keys
- **Scale Compo Window to 100%** using **⌘ =** keys
- **Fit composition into Compo Window** drawing window size box with **[option]** key

- **Quick move** with hand tool by pressing [**space bar**] (move Compo Window or timeline)
- **Shuffle object back** using [key
- **Shuffle object forward** using] key
- **Move object anchor point** using [**option**]
- **Rotate or skew object(s) around anchor point** using [**option**] key
- **Add (remove) bezier point** on a path using [**option**] **click** with regular arrow tool
- **Convert path bezier point** by click (or click drag) on it using convert tool

Synchro Window

- **Stretch proportionally** keyframes while changing object lifespan using [**option**]
- **Right or left align keyframes** while changing object lifespan using [**control**] key
- **Quick move** hand tool pressing [**space bar**] key (move synchro or timeline)
- **Zoom in timeline** using ⌘ + or ⌘ [**space bar**] keys
- **Zoom out timeline** using ⌘ - or ⌘ [**option**] [**space bar**] keys
- **Move current time frame by frame** using **left and right arrow** keys
- **Move current time to beginning (end)** of the project using ⌘ **left (right) arrow** keys
- **Select previous (next) object** using [**shift**] and **up (down) arrow keys** to add selection
- **Duplicate object** by [**option**] **drag**
- **Duplicate keyframe(s)** by [**option**] **drag**
- **Listen to a sound** by [**option**] clicking anywhere on sound wave object representation
- **Launch sound window** by double-clicking on sound wave object representation

- **Edit object name** by double-clicking on object name
- **Display reduced dance attributes list** by click and wait on the open/close arrow
- **Open (close) all dance attributes lists** by [**option**] open (close) any dance list
- **Apply an object dance(s)** to another object(s) by drag and drop
- **Add or remove objects one by one** to a selection using [**shift**]
- **Select a range of objects** using ⌘ key
- **Launch speed variation editor** by double-clicking between two keyframes

Timeline-Related

- **Edit marker name** by double-clicking on it
- **Erase markers** by dragging them out of the timeline
- **Quick move hand tool** using [**space bar**] key
- **Adjust yellow output area in and out** by double-clicking on gray timeline rail
- **Start wireframe preview** of animation by dragging the current time
- **Zoom in timeline** using ⌘ + or ⌘ [**space bar**] keys
- **Zoom out timeline** using ⌘ - or ⌘ [**option**] [**space bar**] keys

Tool Palette

With either the Compo or Synchro Window active, you can quickly select desired tools from the Tool palette selections by pressing the following keys:

- **h** key for **hand tool**
- **a** key for **arrow tool**
- **t** key for **text tool**
- **m** key for **magnify tool**
- **r** key for **rotation tool**

- **s** key for **scale tool**
- **k** key for **sKew tool**
- **b** key for **bucket tool**
- **e** key for **eyedropper tool**

Other Tool palette keystroke commands are as follows:

- **Switch any tool with the arrow tool** by pressing ⌘ key
- **Fit composition in Compo Window** by double-clicking on hand tool
- **Set scale of Compo Window to 100%** by double-clicking on magnify tool
- **Switch eyedropper tool with bucket tool** using [option] key
- **Switch rotation tool with scale tool** using ⌘ key
- **Switch skew tool with arrow tool** using ⌘ key

Library

The Library keystroke commands assume that you already have an open library catalog displayed within the Hub window. They are as follows:

- **Select previous (next) object** using **up (down) arrow** key
- **Select multiple objects in continuous range** using [shift] key
- **Select (or deselect) objects in a non-continuous range** using ⌘ key
- **Edit object name** by double-clicking on object name
- **Delete library catalog entry** using [delete] key or ⌘X keys
- **Rearrange order of library objects** by dragging an object entry up or down within library catalog

Sound Window

- **Place sound markers on the fly** by pressing the [space bar] key while audio is playing
- **Adjust scrubbing loop duration** using [shift] drag directly in the sound wave

- **Quick move hand tool** pressing [space bar] key
- **Zoom in timeline** using ⌘ [space bar] keys
- **Zoom out timeline** using ⌘ [option] [space bar] keys

Miscellaneous

- **Make QuickTime movie** pressing [enter] key (i.e., on the numeric keypad)
- **Make wireframe preview** of animation pressing ⌘ and [enter] key (i.e., on the numeric pad)
- **Extract palette info** (object, text and timing) by dragging their generic icon at the top of Hub window onto your desktop
- **Switch active window** from Compo Window to Synchro Window using ⌘ [tab] keys

Index

A

- add bezier point cursor 74
- Adobe multiple font master
 - attributes 60
- AIFF (Audio Interchange File Format) files 90
 - digital vs. MIDI files 91
- alpha channel 58
 - Over 57
- anchor point 53
- Animated GIF... command
 - smart icon 37
- Animation codec 101
- antialiasing 24
- Arrange Menu 21
- arrow tools. *See* editing tool and bezier points—tools
- attributes 53–60
 - audio 60
 - balance 60
 - volume 60
 - common, text and graphics 53–58
 - anchor point 53
 - color 58
 - opacity 54
 - position 53
 - rotation 53
 - scale 53
 - skew 53
 - transfer ink modes 54–58
 - visibility 53
 - text 58–60
 - color 58
 - font family 58
 - font size 58
 - GX typography 60
 - layout flush 59
 - layout justification 59
 - modifying through Type Menu 68
 - multiple font master 60
 - text area 59
 - tracking 60
- Audio CD Window ??–107
 - channels pop-up 106
- audio files
 - storage requirements 107
 - supported types 90
- Audio Marking Windows 92–97
 - digital files vs. MIDI files 92
 - illustrated 93
 - audio object attributes 60
 - in expanded Synchro Window 39
 - Show Object Attributes command 42, 43
 - Also see* attributes—audio
 - audio output bar
 - in Audio Marking Windows 93, 95
 - audio settings
 - sample rate pop-up 106
 - sample size pop-up 106
 - auto-scroll, horizontal
 - in Audio Marking Windows 93, 97

B

- Background Color... command 69
 - smart icon 37
- balance 60
- bezier points
 - adding points (curves) 74
 - bezier tangent endpoints 74

converting angle to curve 77
 converting curve to angle 76
 deleting 76
 manipulating 74
 multiple points along a single path 75
 speed between key frames 83
 splitting a bezier tangent 77
 tools
 add bezier tool 74
 convert bezier tool 77
 delete bezier tool 76
 in Toolbox Palette 51

C

CD-ROM drive 10
 channels
 affects storage requirements 106
 in Audio CD Window 106
 stereo vs. mono 106
 Cinepak codec 102
 Clear command 66
 color 58
 color picker window
 HSL 71
 RGB 70
 Also see color sample box, HSL,
 and RGB
 color sample box 52
 compile movies
 GX Movie command 108
 Make Animated GIF...
 command 109
 Make Java Animation...
 command 109
 Make QT Movie command 108
 Sprite Movie command 108
 Compo Window
 basic illustration 19
 build window 31
 Compo Windows command 40
 introduction to 17
 positioning on desktop 25
 Compo Windows command 40
 Component Video (YUV) codec 102
 control buttons
 in Audio Marking Windows 93,
 96

convert bezier point cursor 76
 Copy command 66
 copy and paste objects 64
 current time
 in Audio Marking Windows 93
 in Compo/Synchro Windows 31
 current time snap buttons
 in Compo/Synchro Windows 31,
 34
 cursor position
 in Compo/Synchro Windows 31,
 32
 in Speed Variation Window 84
 cursor time
 in Audio Marking Windows 93,
 94
 in Speed Variation Window 84
 Cut command 66

D

dance bars
 adjusting speed between key
 frames 84
 in expanded Synchro Window 39
 that extend beyond view area 88
 Dancer
 6-step animation 13
 Compo Window 17
 installation 11
 Synchro Window 17
 dancing attributes lists
 in expanded Synchro Window 39
 Also see attributes
 delete bezier point cursor 76
 digital audio 90
 digital vs. MIDI files 91
 storage requirements 107
 display mode units
 in Compo/Synchro Windows 31,
 34, 38

E

Edit Menu
 described 20

editing tool 51
 eyedropper tool 52

F

File Menu
 described 20
 File Sharing
 turning off for Dancer 9
 first/last frame buttons 31, 34
 font
 family
 default 22
 in Type Menu 69
 text attribute 58
 justify
 in Type Menu 69
 size
 default 22
 in Type Menu 69
 text attribute 58
 style
 in Type Menu 69

G

Graphics codec 102
 graphics object attributes
 in expanded Synchro Window 39
 Show Object Attributes
 command 42, 43
 Also see attributes
 Graphics/Sound Palette
 illustrated 41
 positioning on desktop 25
 GX Movie command 108
 GX typography attributes 60

H

hand tool 50
 expanding/shortening object
 lifespans 35
 moving object lifespans left or
 right 35
 to scroll Synchro Window 88
 hard drive
 diagnostics and repair 8
 partitioning for Dancer projects 8

HSL 70
color picker window 71

Hub
advantages of 41
Hub editing vs. Synchro Window editing 41
illustrated 41
palettes vs. windows 41
positioning on desktop 25
Show Hub command 40

I

Import command. *See* objects—importing

importing
copy and paste 64
drag and drop 63
Import command 64
imported file embedded preference 23
renaming imported objects 64

IN/OUT adjustment handles
in Audio Marking Windows 93, 95
in Compo/Synchro Windows 31, 33

incremental window sizer 31, 36
info labels
in Hub 41
in Synchro Window 31

ink modes. *See* transfer ink modes

J

Java. *See* Make Java Animation... command

JPEG. *See* Photo-JPEG (YUV) codec

K

key frame “mushrooms”
in expanded Synchro Window 39

key frame tags 36
in expanded Synchro Window 39
in Synchro Window 31

key frames 39
creating 39
duplicating 82

in Speed Window 83
locked, adjust left/right 82
moving location of 81
outside of object lifespan 82
relation to RCT indicator 33
speed between 83

L

layout flush 59

layout justification 59

Library Window 43–50
adding new entries 47
creating library catalogs 45
deleting entries 49
entry types
dance(s) only 44
DOBs (dancing objects) 44
raw 44
illustrated 41
importing entries into project 48
library management
commands 46
naming a new catalog 46
renaming entries 49
Show Library command 50

loop button
in Audio Marking Windows 93, 96

M

Make Animated GIF...
command 109

Make Java Movie... command 109

Make QT Movie command 108

MIDI files 90
digital vs. MIDI files 91

MIDI track edit button
in MIDI Audio Marking Window 93

O

Object Attributes Palette 42, 43
compared with graphics/audio attributes lists (Synchro Window) 42, 43

Show Object Attributes
command 42, 43

object icons 31, 35
object labels 20, 30, 31, 35
object lifespans 20, 30, 31, 35
default setting 22
that extend beyond view area 88
time alignment 85

objects

attributes
common, text and
graphics 53–58
sound 60
text 58–60

importing 61
copy and paste 64
drag and drop 63
Import command 64
imported file embedded preference 23

position in Synchro Window 30
speed between key frames 83

stacking 67

supported
audio 90
graphics 31
movies 31
text 31

synchronizing with audio 90
visual alignment 88

opacity 54

Output Menu
described 21

P

paint bucket tool 52

Paste command 66
copy and paste objects 64
Also see Paste Special... command

Paste Special... command 78
key frame alignment settings 79

pause button. *See* play/pause button

Photo-JPEG codec 102

play/pause button
in Audio Marking Windows 93, 96

position 53

Preferences
Input settings
default font 22

- default font size 22
- default object lifespan 22
- default text area 22
- imported file embedded 23
- Output settings
 - output antialiasing 24
 - output QuickTime size 24
- Project settings
 - Undo level 23
 - setting up before working 21
- project output bar 20, 30, 31, 33

Q

- QT Movie command
 - smart icon 37
- QuickDraw GX
 - GX Movie command 108
 - multiple font master 9
 - required for Dancer 9
- QuickTime
 - compression 100–104
 - comparing codecs 101
 - Make QT Movie command 108
 - Musical Instruments 10
 - Power Plug system extension 10
 - required for Dancer 10

R

- RAM
 - allocating to Dancer 7
 - Memory control panel settings 7
 - minimum requirements 7
- RCT indicator 31, 32
 - dragging to see wireframe
 - preview 33
- Redo command 66
 - Also see* Undo level
- Revert command 26
- RGB 70
 - color picker window 70
- rotate tool 52
- rotation 53

S

- sample rate 106
 - storage requirements 106

- sample size 106
 - 8-bit vs. 16-bit 106
 - storage requirements 106
- sampling sequences
 - in Audio Marking Windows 93
- Save A Copy As command 26
- Save As... command 26
- Save Compo as GIF... command 27
- Save Compo as GX... command 26
- Save Compo as PICT...
 - command 27
- Save... command 26
- scale 53
- scale tool 52
- scrubbing audio
 - in Digital Audio Marking Window 93
- scrubbing button
 - in Digital Audio Marking Window 97
- Send to Back command 67
- Send to Front command 67
- Show Hub command 40
- Show Library command 50
- Show Object Attributes
 - command 42, 43
- Show Preview command 21
 - smart icon 37
- Show Text Attributes command 52
- Shuffle Back command 67
 - smart icon 37
- Shuffle Forward command 67
 - smart icon 37
- skew 53
- skew tool 52
- smart icons
 - Center RCT Line 38
 - Display Mode Unit Settings 38
 - FPS Timeline Unit Settings 38
 - Make Animated GIF 37
 - Make QuickTime Movie 37
 - Set Background Color 37
 - Show Preview 37
 - Show Timing Markers 37
 - Shuffle Back 37
 - shuffle forward object(s) 37
 - Text Decompose 37

- Time Alignment 37
- snap play/current time
 - in Audio Marking Windows 96
- snap play/current time button
 - in Audio Marking Windows 93
- snap/drag loop button
 - in Audio Marking Windows 93, 97
- Sound Manager
 - required for Dancer 8
- sound marker maker
 - in Audio Marking Windows 93, 94
- sound object attributes. *See* audio object attributes
- Speed Variation Window 83
 - controlling the speed 84
- Sprite Movie command 108
- stop button
 - in Audio Marking Windows 93, 96
- Synchro Window
 - basic illustration 19
 - expanded illustration 39
 - introduction to 17
 - positioning on desktop 25
 - Synchro Windows command 40
- Synchro Windows command 40
- system configuration
 - CD-ROM drive 10
 - File Sharing 9
 - hard drive 8
 - headphones 11
 - monitor 11
 - PowerPC 6
 - QuickDraw GX 11
 - QuickTime 10
 - RAM 7
 - Sound Manager 8
 - stereo speakers 11

T

- text area 59
 - default 22
- Text Attributes Palette 42
 - compared with text attributes lists (Synchro Window) 42

Text Decompose... command
 smart icon 37

text object attributes
 in expanded Synchro Window 39
Also see attributes—audio

Text Palette
 illustrated 41
 positioning on desktop 25
 Show Text Attributes
 command 52

text tool 51

Text Ungroup command 80
 centered new anchor points
 setting 80

Time alignment
 align ends
 free 86
 locked 86
 align starts
 free 86
 locked 86
 command, described 85
 elements selected 87
 key frame justification settings 86
 overlap 87

Time Alignment...
 smart icon to launch window 37

timeline ruler 20, 31

timeline zoom tool 31, 36

timing marker maker 31, 34

Timing Palette
 illustrated 41
 positioning on desktop 25

Toolbox Palette
 bezier point tools 51
 color sample box 52
 editing tool 51
 eyedropper tool 52
 hand tool 50
 paint bucket tool 52
 rotate tool 52
 scale tools 52
 skew tool 52
 text tool 51
 zoom toggle tools 51

tracking 60

transfer ink modes 54–58
 And 56
 Exclude 57

Fade 58
 Highlight 55
 Migrate 55
 Opaque 54
 Or 56
 Over 57
 Overprint RGB 54
 Ramp And 56
 Ramp Or 57
 Revert 57
 Straight Alpha 57
 Tinted Glass 55
 Tinted Light 55
 Translucent 55
 Xor 56

transfer modes. *See* transfer ink
 modes

Type Menu
 described 21

U

Undo command 23, 66
Also see Undo level

V

Video codec 102
 view setting 31, 36
 visibility 53
 Visual Alignment command 88
 volume (as audio attribute) 60

W

WAV files 90
 digital vs. MIDI files 91
 window grow box 31, 36
 Windows Menu
 described 21
 wireframe preview 33

Y

YUV. *See* Component Video (YUV)

codec

Z

zoom toggle tools 51
 zoom tool. *See* timeline zoom tool