

# Figures, Tables, and Listings

## Color Plates

---

*Color plates are immediately preceding the title page.*

- Color Plate 1** A color window  
**Color Plate 2** A color alert box  
**Color Plate 3** An icon family  
**Color Plate 4** Document icons

## Chapter 1

### Introduction to the Macintosh Toolbox 1-1

---

- Figure 1-1** The SurfWriter application with multiple windows on the desktop 1-3  
**Figure 1-2** A typical window 1-6  
**Figure 1-3** Common controls 1-7  
**Figure 1-4** An alert box 1-8  
**Figure 1-5** Modal, movable modal, and modeless dialog boxes 1-9

## Chapter 2

### Event Manager 2-1

---

- Figure 2-1** Sources of events sent to your application 2-6  
**Figure 2-2** Low-level events 2-10  
**Figure 2-3** Operating-system events 2-11  
**Figure 2-4** High-level events 2-14  
**Figure 2-5** The `modifiers` field of the event record 2-20  
**Listing 2-1** Using the `WaitNextEvent` function 2-23  
**Listing 2-2** An event loop 2-24  
**Listing 2-3** Processing events 2-26  
**Figure 2-6** The event mask 2-27  
**Listing 2-4** The `Rez` input for a sample 'SIZE' resource 2-31  
**Listing 2-5** Handling mouse-down events 2-34  
**Figure 2-7** The `message` field of the event record for keyboard events 2-40  
**Figure 2-8** Keyboard translation 2-41  
**Figure 2-9** Virtual key codes for the Apple Keyboard II, ISO layout 2-42  
**Figure 2-10** Virtual key codes for the Apple Extended Keyboard II 2-43  
**Listing 2-6** Handling key-down and auto-key events 2-45  
**Listing 2-7** Handling key-down events 2-45  
**Listing 2-8** Scanning for a Command-period event 2-47  
**Figure 2-11** Responding to an update event for a window 2-50  
**Listing 2-9** Responding to update events 2-51  
**Figure 2-12** Responding to activate events for a window 2-53  
**Listing 2-10** Responding to activate events 2-54  
**Listing 2-11** Responding to disk-inserted events 2-57  
**Listing 2-12** Handling null events 2-58  
**Listing 2-13** Responding to operating-system events 2-60

<b>Listing 2-14</b>	Responding to suspend and resume events	2-62
<b>Figure 2-13</b>	The standard arrow cursor	2-64
<b>Figure 2-14</b>	The I-beam, crosshairs, plus sign, and wristwatch cursors	2-64
<b>Figure 2-15</b>	The arrow region and the I-beam region	2-65
<b>Figure 2-16</b>	Changing the cursor from the I-beam cursor to the arrow cursor	2-66
<b>Listing 2-15</b>	Changing the cursor	2-66
<b>Listing 2-16</b>	Accepting a high-level event	2-71
<b>Listing 2-17</b>	Posting a high-level event by application signature	2-75
<b>Listing 2-18</b>	Using the <code>PPCBrowser</code> function to post a high-level event	2-77
<b>Figure 2-17</b>	Structure of the <code>KeyTranslate</code> function result	2-112
<b>Listing 2-19</b>	A Rez template for a 'SIZE' resource	2-117

## Chapter 3

### Menu Manager 3-1

---

<b>Figure 3-1</b>	A pull-down menu, a submenu, and a pop-up menu	3-6
<b>Figure 3-2</b>	The SurfWriter application's menu bar with the Edit menu displayed	3-7
<b>Figure 3-3</b>	The menu bar of the SurfWriter application	3-10
<b>Figure 3-4</b>	The SurfWriter application's menu bar localized for another script system	3-10
<b>Figure 3-5</b>	Two menus with various characteristics	3-13
<b>Figure 3-6</b>	Menu items in a mutually exclusive group	3-15
<b>Figure 3-7</b>	Menu items in an accumulating group	3-15
<b>Figure 3-8</b>	Use of a checkmark and dash in an accumulating group	3-15
<b>Table 3-1</b>	Reserved keyboard equivalents for all systems	3-18
<b>Table 3-2</b>	Reserved keyboard equivalents for worldwide systems	3-19
<b>Table 3-3</b>	Other common keyboard equivalents	3-19
<b>Figure 3-9</b>	The Apple menu for the SurfWriter application	3-21
<b>Figure 3-10</b>	Choosing the About command of the SurfWriter application	3-22
<b>Figure 3-11</b>	The standard File menu for an application	3-22
<b>Table 3-4</b>	Actions for standard File menu commands	3-23
<b>Figure 3-12</b>	The standard Edit menu for an application	3-24
<b>Table 3-5</b>	Actions for standard Edit menu commands	3-25
<b>Figure 3-13</b>	A typical Font menu	3-26
<b>Figure 3-14</b>	A Font menu showing a selection containing more than one font	3-27
<b>Figure 3-15</b>	A typical Size menu	3-28
<b>Figure 3-16</b>	A dialog box to select a new point size for a font	3-28
<b>Figure 3-17</b>	Entering a new point size for a font	3-29
<b>Figure 3-18</b>	The Other command with a font size added to it	3-29
<b>Figure 3-19</b>	The Help menu of the SurfWriter application	3-30
<b>Figure 3-20</b>	Default help balloons for the Apple menu and Application menu	3-31
<b>Figure 3-21</b>	Help balloons for different states of the Cut command	3-31
<b>Figure 3-22</b>	Accessing the Keyboard menu from an application	3-32
<b>Figure 3-23</b>	SurfWriter's Application menu	3-33
<b>Figure 3-24</b>	A pop-up menu	3-34
<b>Figure 3-25</b>	A pop-up menu in its closed and open states	3-34
<b>Figure 3-26</b>	Making a selection from a pop-up menu	3-35

<b>Figure 3-27</b>	Choosing one attribute from a list of many	3-36
<b>Figure 3-28</b>	A dialog box with checkboxes and pop-up menus	3-37
<b>Figure 3-29</b>	A type-in pop-up menu in its closed and open states	3-37
<b>Figure 3-30</b>	A type-in pop-up menu with a user's choice added	3-38
<b>Figure 3-31</b>	A hierarchical menu item and its submenu	3-39
<b>Listing 3-1</b>	Rez input for a 'MENU' resource for the Apple menu	3-43
<b>Table 3-6</b>	Specifying submenus, script codes, reduced icons, small icons, and color icons of a menu item in a menu resource	3-46
<b>Listing 3-2</b>	Rez input for a 'MENU' resource for an Edit menu	3-48
<b>Listing 3-3</b>	Rez input for a 'MENU' resource for a File menu	3-49
<b>Listing 3-4</b>	Rez input for an 'MBAR' resource	3-49
<b>Listing 3-5</b>	Setting up an application's menus and menu bar	3-50
<b>Listing 3-6</b>	Saving and restoring menu color information	3-52
<b>Figure 3-32</b>	A menu item with a submenu	3-53
<b>Listing 3-7</b>	Rez input for a description of a hierarchical menu with a submenu	3-54
<b>Listing 3-8</b>	Creating a hierarchical menu	3-55
<b>Figure 3-33</b>	A pop-up menu in a dialog box	3-56
<b>Listing 3-9</b>	Changing the text of a menu item	3-59
<b>Listing 3-10</b>	Setting the font style of menu items	3-60
<b>Listing 3-11</b>	Adding marks to and removing marks from menu items	3-61
<b>Figure 3-34</b>	Icons in menu items	3-63
<b>Listing 3-12</b>	Specifying icons for menu items	3-63
<b>Listing 3-13</b>	Rez input for text of menu items	3-66
<b>Listing 3-14</b>	Adding an item to the Help menu	3-68
<b>Listing 3-15</b>	Adding menu items to the Apple menu	3-69
<b>Listing 3-16</b>	Adding font names to a menu	3-70
<b>Listing 3-17</b>	Determining whether a mouse-down event occurred	3-72
<b>Listing 3-18</b>	Determining when the cursor is in the menu bar	3-72
<b>Listing 3-19</b>	Adjusting an application's menus	3-74
<b>Listing 3-20</b>	Adjusting the File menu for a document window	3-74
<b>Listing 3-21</b>	Adjusting the Edit menu for a document window	3-75
<b>Listing 3-22</b>	Determining when a key is pressed	3-77
<b>Listing 3-23</b>	Checking a key-down event for a keyboard equivalent	3-78
<b>Listing 3-24</b>	Responding to the user's choice of a menu command	3-79
<b>Listing 3-25</b>	Responding to the user's choice of an item from the Apple menu	3-80
<b>Listing 3-26</b>	Responding to the user's choice of a command from the Help menu	3-81
<b>Figure 3-35</b>	A Size menu with user-specified size added	3-82
<b>Listing 3-27</b>	Handling the Size menu	3-83
<b>Figure 3-36</b>	Menu access from a modal dialog box	3-85
<b>Listing 3-28</b>	A sample menu definition procedure	3-89
<b>Listing 3-29</b>	Calculating the size of a menu	3-90
<b>Listing 3-30</b>	Drawing menu items	3-91
<b>Listing 3-31</b>	Choosing menu items	3-93
<b>Table 3-7</b>	Color information for menu entries	3-100
<b>Table 3-8</b>	Mapping between new and previous names of Menu Manager routines	3-102
<b>Figure 3-37</b>	Structure of a compiled menu ('MENU') resource	3-152
<b>Figure 3-38</b>	The variable-length data that describes menu items as defined by the standard menu definition procedure	3-153

<b>Figure 3-39</b>	Structure of a compiled menu bar ( 'MBAR' ) resource	3-155
<b>Figure 3-40</b>	Structure of a compiled menu color information table ( 'mctb' ) resource	3-156
<b>Figure 3-41</b>	Structure of a menu color entry in an 'mctb' resource	3-157

## Chapter 4

## Window Manager 4-1

---

<b>Figure 4-1</b>	Multiple windows	4-4
<b>Figure 4-2</b>	A document window	4-5
<b>Figure 4-3</b>	Active and inactive document windows	4-7
<b>Figure 4-4</b>	A window of type <code>zoomDocProc</code>	4-8
<b>Figure 4-5</b>	A window of type <code>zoomDocProc</code> , with size box and inactive scroll bars	4-9
<b>Figure 4-6</b>	Window types for alert boxes and fixed-position modal dialog boxes	4-9
<b>Figure 4-7</b>	A window of type <code>movableDBoxProc</code>	4-10
<b>Figure 4-8</b>	A window of type <code>noGrowDocProc</code>	4-10
<b>Figure 4-9</b>	Seldom-used window types	4-11
<b>Figure 4-10</b>	Window frame, content region, and structure region	4-12
<b>Figure 4-11</b>	Scroll bars	4-14
<b>Figure 4-12</b>	Controls in a dialog box	4-15
<b>Figure 4-13</b>	The QuickDraw global coordinate plane	4-17
<b>Figure 4-14</b>	A window's local and global coordinate systems	4-19
<b>Listing 4-1</b>	Determining the window type	4-25
<b>Listing 4-2</b>	Rez input for a window ( 'WIND' ) resource for a document window	4-26
<b>Listing 4-3</b>	Creating a new window	4-28
<b>Figure 4-15</b>	Document window positions on a single screen	4-31
<b>Figure 4-16</b>	"Filling in" an empty document window position	4-31
<b>Figure 4-17</b>	Document window positions on multiple screens	4-33
<b>Listing 4-4</b>	Application-defined data structure for storing a window's state data	4-34
<b>Listing 4-5</b>	Saving a document window's position	4-34
<b>Listing 4-6</b>	Positioning the window when the user opens a saved document	4-36
<b>Listing 4-7</b>	Opening a saved document	4-37
<b>Listing 4-8</b>	Drawing a window	4-39
<b>Figure 4-18</b>	Moving one window and adding to another window's update region	4-40
<b>Listing 4-9</b>	Handling mouse-down events	4-44
<b>Figure 4-19</b>	The close box with and without highlighting	4-46
<b>Figure 4-20</b>	The zoom box with and without highlighting	4-47
<b>Figure 4-21</b>	The effects of <code>BeginUpdate</code> and <code>EndUpdate</code> on the visible region and update region	4-49
<b>Listing 4-10</b>	Handling update events	4-50
<b>Listing 4-11</b>	Handling activate events	4-51
<b>Listing 4-12</b>	Zooming a window	4-55
<b>Listing 4-13</b>	Resizing a window	4-58
<b>Listing 4-14</b>	Adjusting scroll bars and content region when resizing a window	4-59
<b>Listing 4-15</b>	Converting a window region to local coordinates	4-60

<b>Listing 4-16</b>	Handling a close command	4-60
<b>Listing 4-17</b>	Closing a document	4-61
<b>Figure 4-22</b>	The cumulative effects of <code>HideWindow</code> , <code>ShowWindow</code> , and <code>SelectWindow</code>	4-63
<b>Listing 4-18</b>	Showing a hidden dialog box	4-64
<b>Figure 4-23</b>	Limiting rectangle used by <code>DragGrayRgn</code>	4-98
<b>Figure 4-24</b>	Structure of a compiled window (' <code>WIND</code> ') resource	4-124
<b>Figure 4-25</b>	Structure of a compiled window color table (' <code>wctb</code> ') resource	4-128

## Chapter 5

### Control Manager 5-1

---

<b>Figure 5-1</b>	Standard controls provided by the Control Manager	5-4
<b>Figure 5-2</b>	A default button	5-5
<b>Figure 5-3</b>	A selected checkbox	5-5
<b>Figure 5-4</b>	A vertical scroll bar	5-7
<b>Figure 5-5</b>	Using the scroll box and scroll arrows	5-8
<b>Figure 5-6</b>	Spatial relations between a document and a window, and their representation by a scroll bar	5-10
<b>Figure 5-7</b>	Custom slider controls	5-11
<b>Figure 5-8</b>	Visual feedback for user selection of active controls	5-12
<b>Figure 5-9</b>	Inactive controls	5-13
<b>Figure 5-10</b>	A button in a simple window	5-17
<b>Listing 5-1</b>	Creating a button for a window	5-17
<b>Listing 5-2</b>	Rez input for a control resource	5-18
<b>Figure 5-11</b>	Radio buttons in a simple window	5-20
<b>Listing 5-3</b>	Rez input for the control resources of radio buttons	5-21
<b>Figure 5-12</b>	How a scroll bar should overlap the window frame	5-22
<b>Listing 5-4</b>	Rez input for resources for a window and its scroll bars	5-23
<b>Listing 5-5</b>	Creating a document window with scroll bars	5-24
<b>Figure 5-13</b>	A pop-up menu	5-26
<b>Listing 5-6</b>	Rez input for the control resource of a pop-up menu	5-26
<b>Figure 5-14</b>	Dimensions of a sample pop-up menu	5-26
<b>Listing 5-7</b>	Responding to an update event for a window	5-29
<b>Listing 5-8</b>	Redrawing the controls in the update region	5-30
<b>Listing 5-9</b>	Detecting mouse-down events in a window	5-32
<b>Listing 5-10</b>	Detecting mouse-down events in a pop-up menu and a button	5-33
<b>Figure 5-15</b>	Three controls in a window	5-34
<b>Listing 5-11</b>	Using the <code>TrackControl</code> function with a button	5-36
<b>Listing 5-12</b>	Using <code>TrackControl</code> with a pop-up menu	5-37
<b>Listing 5-13</b>	Responding to a click in a checkbox	5-38
<b>Listing 5-14</b>	Adjusting scroll bar settings and locations	5-39
<b>Listing 5-15</b>	Assigning settings to scroll bars	5-40
<b>Listing 5-16</b>	Adjusting the maximum and current settings for a scroll bar	5-41
<b>Figure 5-16</b>	Moving a document relative to its window	5-46
<b>Listing 5-17</b>	Using <code>ScrollRect</code> to scroll the bits displayed in the window	5-47
<b>Figure 5-17</b>	Updating the contents of a scrolled window	5-49

<b>Figure 5-18</b>	Restoring the window origin to (0,0)	5-50
<b>Figure 5-19</b>	Scrolling to the end of a document	5-51
<b>Figure 5-20</b>	Updating a window's contents and returning the window origin to (0,0)	5-51
<b>Listing 5-18</b>	Responding to mouse events in a scroll bar	5-53
<b>Listing 5-19</b>	Action procedures for scrolling through a text document	5-59
<b>Listing 5-20</b>	Moving the scroll box from the action procedures	5-61
<b>Listing 5-21</b>	An application-defined update routine	5-62
<b>Listing 5-22</b>	Redrawing a window containing graphics objects	5-63
<b>Listing 5-23</b>	Redrawing a window after scrolling a TextEdit edit record	5-65
<b>Figure 5-21</b>	Moving and resizing scroll bars	5-66
<b>Listing 5-24</b>	Changing the size and location of a window's scroll bars	5-67
<b>Figure 5-22</b>	A vertical scroll bar before the application moves it within a resized window	5-69
<b>Figure 5-23</b>	A vertical scroll bar after the application moves its upper-left point	5-69
<b>Figure 5-24</b>	A custom control	5-71
<b>Table 5-1</b>	Mapping between new and previous names of Control Manager routines	5-80
<b>Figure 5-25</b>	Structure of a compiled control ('CNTL') resource	5-118
<b>Figure 5-26</b>	Structure of a compiled control color table ('cctb') resource	5-122

## Chapter 6

### Dialog Manager 6-1

---

<b>Figure 6-1</b>	An alert box used by the Finder	6-6
<b>Figure 6-2</b>	A typical dialog box	6-7
<b>Figure 6-3</b>	A note alert	6-8
<b>Figure 6-4</b>	A caution alert	6-9
<b>Figure 6-5</b>	A stop alert	6-9
<b>Figure 6-6</b>	A modal dialog box	6-10
<b>Figure 6-7</b>	A movable modal dialog box	6-11
<b>Figure 6-8</b>	A modeless dialog box	6-12
<b>Figure 6-9</b>	Typical items in a dialog box	6-13
<b>Figure 6-10</b>	An alert box to save changes to a document	6-19
<b>Listing 6-1</b>	Rez input for an alert resource	6-19
<b>Figure 6-11</b>	An alert box displayed only during the third and fourth alert stages	6-21
<b>Listing 6-2</b>	Specifying different alert responses according to alert stage	6-21
<b>Listing 6-3</b>	Creating your own sound procedure for alerts	6-22
<b>Figure 6-12</b>	A simple modal dialog box	6-24
<b>Listing 6-4</b>	Rez input for a dialog resource	6-24
<b>Figure 6-13</b>	Relationship of various resources to an alert box	6-27
<b>Listing 6-5</b>	Rez input for providing an alert box with items	6-27
<b>Figure 6-14</b>	A safe default button in an alert box	6-31
<b>Figure 6-15</b>	The consistent spacing of buttons and text in an alert box	6-33
<b>Listing 6-6</b>	Rez input for consistent spacing of display rectangles	6-34
<b>Figure 6-16</b>	Incorrectly and correctly sized display rectangles for alternate script systems	6-35
<b>Figure 6-17</b>	Inactive controls and disabled items	6-37

<b>Figure 6-18</b>	A dialog box with OK and Cancel buttons	6-38
<b>Figure 6-19</b>	A movable modal dialog box with a Stop button	6-39
<b>Figure 6-20</b>	An alert box with a Revert button	6-39
<b>Figure 6-21</b>	An obscure and useless alert message	6-41
<b>Figure 6-22</b>	A less obscure alert message	6-41
<b>Figure 6-23</b>	A clear and helpful alert message	6-41
<b>Figure 6-24</b>	A pop-up menu in a dialog box	6-42
<b>Listing 6-7</b>	Rez input for a dialog resource and an item list resource for a dialog box that includes a pop-up menu	6-43
<b>Listing 6-8</b>	Rez input for a control resource and a menu resource for a pop-up menu	6-43
<b>Figure 6-25</b>	A selected scrolling list	6-45
<b>Figure 6-26</b>	An alert box that displays a document name	6-46
<b>Listing 6-9</b>	Using the <code>ParamText</code> procedure to substitute text strings	6-47
<b>Listing 6-10</b>	Specifying where <code>ParamText</code> should substitute text in an alert box message	6-48
<b>Figure 6-27</b>	Two editable text items in a modeless dialog box	6-48
<b>Listing 6-11</b>	Specifying editable text items in an item list	6-49
<b>Listing 6-12</b>	Getting the text entered by the user in an editable text item	6-49
<b>Figure 6-28</b>	An existing dialog box and items to append	6-51
<b>Figure 6-29</b>	The dialog box after items are overlaid	6-52
<b>Figure 6-30</b>	The dialog box after items are appended to the right	6-52
<b>Figure 6-31</b>	The dialog box after items are appended to the bottom	6-53
<b>Figure 6-32</b>	A dialog box with an item appended relative to an existing item	6-53
<b>Listing 6-13</b>	Appending an item to an existing dialog box	6-54
<b>Listing 6-14</b>	Rez input for a dialog box and the item appended to it	6-55
<b>Listing 6-15</b>	Rez input for an application-defined item in an item list	6-57
<b>Listing 6-16</b>	Installing the draw procedure for an application-defined item	6-58
<b>Listing 6-17</b>	Creating a draw procedure that draws a bold outline around the default button	6-59
<b>Figure 6-33</b>	An alert box in front of a document window	6-63
<b>Figure 6-34</b>	An alert box on the main screen	6-63
<b>Figure 6-35</b>	An alert box in the alert position of the document window screen	6-64
<b>Listing 6-18</b>	Deactivating the front window before displaying an alert box	6-65
<b>Figure 6-36</b>	An alert box displayed only after the third alert stage	6-65
<b>Listing 6-19</b>	Using <code>GetAlertStage</code> to determine when to deactivate the front window	6-66
<b>Figure 6-37</b>	A modeless dialog box for changing text in a document	6-66
<b>Listing 6-20</b>	Ensuring that the modeless dialog box isn't already open before creating it	6-67
<b>Figure 6-38</b>	Menu access when displaying a modal dialog box	6-69
<b>Listing 6-21</b>	Adjusting menus for various windows	6-70
<b>Listing 6-22</b>	Disabling menus for a modal dialog box with editable text items	6-70
<b>Listing 6-23</b>	Adjusting the Edit menu for a modal dialog box	6-72
<b>Listing 6-24</b>	Rez input for a dialog color table resource using the system's default colors	6-75
<b>Listing 6-25</b>	Using <code>DialogSelect</code> during null events	6-79
<b>Figure 6-39</b>	Three buttons for which <code>CautionAlert</code> reports events	6-81

<b>Figure 6-40</b>	Four items for which <code>ModalDialog</code> reports events	6-83
<b>Listing 6-26</b>	Responding to events in a modal dialog box	6-83
<b>Listing 6-27</b>	A typical event filter function for alert and modal dialog boxes	6-88
<b>Figure 6-41</b>	A modeless dialog box for which <code>DialogSelect</code> reports events	6-91
<b>Listing 6-28</b>	Handling mouse-down events for all windows	6-91
<b>Listing 6-29</b>	Using the <code>DialogSelect</code> function for responding to mouse-down events	6-92
<b>Listing 6-30</b>	Hiding a modeless dialog box in response to a <code>Close</code> command	6-94
<b>Listing 6-31</b>	Checking for key-down events involving the <code>Command</code> key	6-95
<b>Listing 6-32</b>	Checking for key-down events in a modeless dialog box	6-95
<b>Listing 6-33</b>	Responding to key-down events in a modeless dialog box	6-96
<b>Listing 6-34</b>	Activating a modeless dialog box	6-98
<b>Listing 6-35</b>	Updating a modeless dialog box	6-99
<b>Table 6-1</b>	Mapping between new and previous names of Dialog Manager routines	6-102
<b>Figure 6-42</b>	Structure of a compiled dialog (' <code>DLOG</code> ') resource	6-148
<b>Figure 6-43</b>	Structure of a compiled alert (' <code>ALRT</code> ') resource	6-150
<b>Figure 6-44</b>	Structure of a compiled item list (' <code>DITL</code> ') resource	6-152
<b>Figure 6-45</b>	Structure of compiled button, checkbox, radio button, static text, and editable text items	6-153
<b>Figure 6-46</b>	Structure of compiled control, icon, and picture items	6-154
<b>Figure 6-47</b>	Structure of a compiled application-defined item	6-155
<b>Figure 6-48</b>	Structure of compiled help items	6-155
<b>Figure 6-49</b>	Structure of a compiled item color table resource	6-159
<b>Figure 6-50</b>	Structure of a compiled control color table	6-161
<b>Figure 6-51</b>	Structure of a compiled text style table	6-162

## Chapter 7

### Finder Interface 7-1

---

<b>Figure 7-1</b>	Application and document icons in a window on the desktop	7-4
<b>Figure 7-2</b>	A customized help balloon for an application icon	7-5
<b>Figure 7-3</b>	A Finder message identifying a missing application	7-5
<b>Listing 7-1</b>	Rez input for a signature resource	7-8
<b>Figure 7-4</b>	Large black-and-white application icons for a company's product line	7-12
<b>Figure 7-5</b>	Default large black-and-white icons	7-12
<b>Figure 7-6</b>	A black-and-white icon and its mask for an application	7-13
<b>Figure 7-7</b>	The ResEdit view of an icon	7-14
<b>Listing 7-2</b>	Rez input for an icon list resource	7-14
<b>Listing 7-3</b>	Rez input for file reference resources	7-19
<b>Listing 7-4</b>	Rez input for a bundle resource	7-21
<b>Figure 7-8</b>	Linking icon list resources and file reference resources in a bundle resource	7-23
<b>Figure 7-9</b>	The default application-unavailable alert box	7-27
<b>Listing 7-5</b>	Rez input for a missing-application name string resource	7-28
<b>Listing 7-6</b>	Storing a missing-application name string resource in the resource fork of a document	7-28

<b>Listing 7-7</b>	Copying the missing-application name string resource into the resource fork of a document 7-29
<b>Figure 7-10</b>	The application-unavailable alert box specifying an application's name 7-29
<b>Listing 7-8</b>	Rez input for an application-missing message string resource 7-30
<b>Figure 7-11</b>	The application-unavailable alert box with a customized message 7-30
<b>Figure 7-12</b>	The application-unavailable alert box for 'TEXT' and 'PICT' documents 7-30
<b>Listing 7-9</b>	Rez input for a pair of version resources 7-32
<b>Figure 7-13</b>	The version data in the information window 7-33
<b>Listing 7-10</b>	Rez input for a size resource 7-35
<b>Listing 7-11</b>	Determining whether a document is a stationery pad 7-36
<b>Figure 7-14</b>	Default and customized help balloons for application icons 7-38
<b>Listing 7-12</b>	Rez input for a help balloon resource for an application icon 7-39
<b>Listing 7-13</b>	Using the <code>ResolveAliasFile</code> function to open a file 7-41
<b>Figure 7-15</b>	The System Folder and related folders 7-42
<b>Figure 7-16</b>	Structure of a signature resource compiled as a string ('STR') resource 7-57
<b>Figure 7-17</b>	Structure of a compiled icon list ('ICON#') resource 7-58
<b>Figure 7-18</b>	Structure of a compiled small icon list ('ics#') resource 7-59
<b>Figure 7-19</b>	Structure of a compiled large 4-bit color icon ('icl4') resource 7-60
<b>Figure 7-20</b>	Structure of a compiled small 4-bit color icon ('ics4') resource 7-61
<b>Figure 7-21</b>	Structure of a compiled large 8-bit color icon ('icl8') resource 7-62
<b>Figure 7-22</b>	Structure of a compiled small 8-bit color icon ('ics8') resource 7-63
<b>Figure 7-23</b>	Structure of a compiled icon ('ICON') resource 7-64
<b>Figure 7-24</b>	Structure of a compiled file reference ('FREF') resource 7-65
<b>Figure 7-25</b>	Structure of a compiled bundle ('BNDL') resource 7-66
<b>Figure 7-26</b>	Mapping local IDs to icon list resource IDs in a bundle resource 7-67
<b>Figure 7-27</b>	Structure of superfluous local ID mapping for file reference resources in a bundle resource 7-67
<b>Figure 7-28</b>	Structure of a compiled missing-application name string resource 7-68
<b>Figure 7-29</b>	Structure of a compiled application-missing message string resource 7-69
<b>Figure 7-30</b>	Format of a compiled version ('vers') resource 7-70

