

Interface Builder

This document describes the interim release of Interface Builder. Interface Builder can be used to create cross-platform dialog box interfaces for plugins.

This version of Interface Builder is based on an internal tool used by the development group at Electric Image, and is provided “as is.” This version lacks many features that would be present in a supported product, such as clipboard support and undo. We will be addressing these deficiencies in an upcoming release, but until then we wanted to give out something that could be used by the plugin development community as soon as possible.

This version of Interface Builder runs only on the Macintosh, and assumes familiarity with Macintosh terminology, such as “resource file.”

Overview

This section gives a quick outline of the steps you will take to build a dialog box resource using Interface Builder.

Step 1: Link A Resource File

You must first tell Interface Builder what resource file into which you will be saving your dialog box resource. This is called linking a resource file. You can only link existing resource files, so you will need to create a resource file using ResEdit or Resorcerer.

When you first start Interface Builder it presents a file dialog box. It is asking you for a resource file to link. Also, you can choose the “Link Resource” command from the “File” menu. This will bring up the standard file dialog box which will allow you to pick a resource file to link.

Step 2: Create Controls

Next, use the creation and manipulation tools to add controls to the edit window. During this step, you will use the property dialog boxes to assign IDs to the controls you will need to manipulate at run time.

N O T E : The ID names you enter in the property dialog boxes must be legal C identifiers. Interface Builder will not warn you if you do not create legal identifiers.

Step 3: Write Control IDs

Once you have assigned IDs to all of the controls you will need to manipulate at run time, choose the “Write Control IDs” command from the “Utility” menu. This will write a file called “Output.c” in the same directory with Interface Builder. This file will contain an enumeration definition with all of your control IDs. You can open this file, copy the enumeration and paste it into your code.

N O T E : If you edit the dialog box further, you will need to regenerate the IDs by choosing the “Recompute IDs” command from the “Utility” menu, followed by the “Write Control IDs” command.

At various times, Interface Builder may generate new IDs for your controls. Therefore, the IDs contained in your dialog box resource may get out of sync with the IDs listed in the “Output.c” file. To avoid this situation, always manually regenerate your control IDs when you are done editing.

When generating IDs with the “Write Control IDs” command, make sure that the file “Output.c” is not open in another application (like CodeWarrior); otherwise the “Write Control IDs” command will fail, but you will not be notified of the failure.

Step 4: Save Your Dialog Box Resource

Choose the “Save” command from the “File” menu. This will bring up a dialog box which asks you to assign a resource ID for your dialog box, as well as a resource name. If you type in the resource ID of an existing resource, you will be prompted to confirm that you really want to save to the given ID.

Step 5: Editing Existing Dialog Boxes

To edit your dialog box interface at a later date, first link the resource file containing your dialog box as described in Step 1. Then choose the “Open” command from the “File” menu. This will present a dialog box with a popup menu listing all of the dialog box resources in the linked resource file. Choose the one you want and press the OK button. Your dialog box resource will be opened in a new edit window, which you may edit and save as described above.

Reference

Windows

There are two main types of window in Interface Builder: the tool window and an interface edit window.

The Tool Window

The tools in the tool window are grouped into three tabs: Manipulation, Alignment, and Controls.

The first tool in the Manipulation tab (the one that looks like an arrow) is the Test tool. When this tool is active, the user interface behaves as it would at run time. That is, buttons press, scrollers scroll, and text can be entered into edit text boxes.

The other tool in the Manipulation tab is the Edit tool. When the edit tool is active, clicking in the edit window edits the objects clicked upon. Using the edit tool you can resize objects, move them and double-click on them to bring up property dialog boxes.

The Alignment tab contains tool buttons that perform alignment operations. The buttons are (listed left to right and top to bottom): Align left, Align right, Align top, Align bottom, Align horizontal, Align vertical, Center horizontal, and Center Vertical.

Each of the tools in the Controls tab are control creation tools. When a control creation tool is active, clicking and dragging in the edit window creates the corresponding user interface control. The tools in the Controls tab, from left to right and top to bottom, are:

- Group Box
- Tab Group
- OK Button
- Cancel Button
- Picture Button
- Text Button
- Edit Text
- Check Box
- Divider

- Scroller
- Static Text
- Picture
- Color Button
- Radio Button Group
- Shader Icon
- Color Slider
- Popup Menu
- List Box

N O T E : Do not use the Shader Icon control. It is unsupported.

The Edit Window

The Edit window is the window in which you create and edit your dialog box resources. You can open more than one Edit window at a time; choosing “New” from the “File” menu creates a new Edit window.

Controls

Each control has a set of properties that are editable in Interface Builder. To edit the properties of a control, double-click the control using the Edit tool to bring up its property dialog box. Each control has a different property dialog box, but they all have two properties in common.

Rectangle	Given as six edit fields (left, top, right, bottom, width, height), the rectangle property is the boundary rectangle of the control
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ID	This is the enumeration ID that will be used for the control when you write out the control IDs.
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The controls you can create, and the properties you can edit, are described here. In the discussion below, only the properties unique to each control are described; since each property dialog box contains the Rectangle and ID properties, they are not redundantly described for each control type.

Note that there are “extra” properties displayed in the property dialog boxes that are not described here. These properties should be considered reserved; you should not attempt to edit them, as they will result in undefined behavior.

Group Box

The Group Box control draws a box, with an optional label. The Group Box's editable properties are

Group Settings	The label of the group box. If this field is empty, the group box does not draw a label.
Type	A radio button group which allows you to select the different styles in which the group may appear. This radio button group is one of two unlabeled radio button groups in the Group Box property dialog box; it is the left radio group.
Label Position	A radio button group which allows you to select the location at which the label will be drawn.

Note that one of the choices in the Type radio button group is "Invisible." If you make an invisible group, then this control will really be a user control at run time.

Tab Group

The Tab Group draws a group of tab panes. The Tab Group's editable properties are

Horizontal Tabs	A check box which, if set, draws the tabs horizontally across the top of the group. If the check box is clear, the tabs are drawn down the left side of the control.
Tab Total	A number between one and nine, which will be the number of tabs in the tab group.
Tab Titles	A series of nine edit fields, labeled "1" through "9". Editing these fields will change the titles of the corresponding tabs.

Note that if you create a control within a tab group, or drag an existing control into a tab group, the tab control's current tab will assume ownership of the control. To switch tabs, click on the Test tool and then click on another tab.

OK Button

The OK Button is a push button that causes the dialog box it is in to be accepted. The OK Button's editable properties are

Name	The title displayed within the OK Button.
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Icon	The resource ID of the image displayed next to the title. An ID of zero removes the image from the button. The ID may be the ID of an 'argb' resource, a 'cicn' resource or a 'PICT' resource.
Border	Controls the "thickness" of the border of the OK Button.
Icon Position	Controls the placement of the OK Button's icon in relation to the title string.
Contents	Controls the location of the title string within the OK Button.

You should not need to change any of the default values.

Cancel Button

The Cancel Button is a push button that causes the dialog box it is in to be dismissed and rejected. The Cancel Button's editable properties are identical to the OK Button's editable properties.

Like the OK Button, you should not need to change any of the default values.

Picture Button

The Picture Button is a push button that displays an icon inside. Its editable properties are identical to the OK Button's editable properties. However, you may change the properties any way you like.

Note that when you bring up the property dialog box of the Picture Button, it initially has no title. It is possible to give the Picture Button a title, and it is possible to give a Text Button an icon. In fact, there is no difference between a Picture Button and a Text Button except for the default values of their properties.

Text Button

The Text Button is a push button that displays a title string. As discussed under Picture Button above, the Text Button is actually identical to the Picture Button.

Edit Text

The Edit Text control's editable properties are

Name	The label displayed to the left of the edit text field.
Use Filter	A check box that controls whether filtering is on by default
Filter Type	A radio button group that allows you to select what kind of filtering to set for this Edit Text control.

N O T E : There are two fields of the Edit Text dialog, labeled Show Controls and Delta, which are obsolete and are ignored.

Check Box

The Check Box's editable properties are

Name	The title of the check box.
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Divider

The Divider is a control use strictly for visual separation. It has no editable properties, and no property dialog box.

Scroller

The Scroller control displays a scroll bar with a thumb which the user can drag up and down (for horizontal scrollers) or right and left (for vertical scrollers). Whether a Scroller is horizontal or vertical is controlled by whether the width or height is the larger extent.

The only properties editable in the Scroller's property dialog box are the Rectangle and ID properties. Note that you cannot set the default value or maximum of the Scroller; these values must be set at run time using the User Interface API.

Static Text

The Static Text control's editable properties are

Name	The text displayed in the static text control.
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Picture

The Picture control's editable properties are

ResID	The resource ID of the image displayed in the Picture control. This ID may be the ID of an existing 'argb', 'cicn' or 'PICT'. The image resource must already be present in the currently linked resource file; there is no way to add an image resource to your linked resource file from within Interface Builder.
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Color Button

The Color Button allows a user to choose a new color using a color picker. The Color Button's editable properties are

Edit Alpha	A check box that, if set, will allow the user to edit the alpha value of the color when the color picker is presented.
Prompt	An edit field that contains the prompt string displayed in the color picker when the user clicks the Color Button.

Radio Button Group

The Radio Button Group's editable properties are

Button Total	A number between one and nine, which will be the number of radio buttons in the Radio Button Group.
Button Titles	A series of nine edit fields, labeled "1" through "9". Editing these fields will change the titles of the corresponding radio buttons.

Note that the button titles are the left-most column of edit fields in the Radio Button Group property dialog box. Do not edit the right-most column of edit fields. These fields should always be set to 0.

Color Slider

The Color Slider's editable properties are

Slider Type	A radio button group that selects the appearance of the Color Slider. Each type value causes the Color Slider to display a different kind of color ramp.
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As with the Scroller control, you cannot set the default value or maximum of the Color Slider; these values must be set at run time using the User Interface API.

Popup Menu

The Popup Menu's editable properties are

Item Total	A number between one and twenty. This will be the number of items displayed in the popup menu.
Item Names	A series of edit fields, labeled "1" through "20". Editing these fields will change the corresponding items in the Popup Menu.
Notify On Every Click	A check box that, if set, will cause your hit function to be called every time the Popup Menu is clicked, even if the user does not make a new choice. If this check box is off, your hit function will be called only when the user selects a new item in the Popup Menu.
Name	The title of the Popup Menu.

List Box

The List Box has no editable properties beyond the Rectangle and ID properties. You must populate the List Box with items at run time. Also, note that when displayed in Interface Builder the List Box contains a series of strings and icons. These items will not be present in your List Box at run time.

Tab Order

The tab order is the order in which key focus controls will be visited when the user presses the tab key. To set the tab order, choose the "Set Tab Order" command from the "Utility" menu, then click on the Edit Text controls in your window one by one, in the order you want. As you click on each one, Interface Builder writes the order number on the edit text, until you get to the last Edit Text control, at which point the tab order has been set and the display reverts back to normal.

This command places Interface Builder into a mode where it will not respond until you have clicked on each Edit Text control.

N O T E : There is a known bug in Interface Builder which prevents the Set Tab Order command from working correctly when there

are Edit Text controls in tab group controls. There is no way to switch tabs in a tab group control when you are in the set tab order mode, so if you have Edit Text controls inside different tabs you will not be able to click on all of the Edit Text controls. The workaround is to temporarily move the Edit Text controls out of the tab group, use the Set Tab Order command, and then put them back into the tab group control.

Miscellaneous

The Edit menu contains commands that perform the alignment operations in the Alignment tab of the tool bar.

The “Adjust Grid” command brings up a dialog box which allows you to enter a grid size. By default the value is one, which is equivalent to “grid off.” A value greater than one will cause all dragging and resizing actions to be constrained to the grid size.

The “Resize Dialog” command brings up a dialog which lets you specify a width and height for the interface window you are editing.

The “Text Serialization” command in the “Utility” menu should not be used.

Note that if you do not save your changes before quitting, Interface Builder will not prompt you with a “Save Changes?” dialog box.