

THE CONTROL EDITOR

INTRODUCTION

This chapter explains how to use Resorcerer's Control Editor, which edits control template ('CNTL') resources, along with their related minor Control Color Table ('cctb') resources.

If you are not already familiar with general resource editing techniques, you will want to read the "Editing Resources" chapter earlier in the manual.

TOPICS COVERED

- Control template resource sets
- Creating a new control template
- Opening a control template
- Editor window layout
- Decompiling a control
- Trying a control out
- Finding all dialog item references
- Closing the control template

CONTROL TEMPLATE RESOURCE SETS

On the Mac, controls such as buttons, checkboxes, scroll bars, etc., are implemented using a Control Definition Function that is kept in an executable resource of type ‘CDEF’. Configurable values such as the title of the control, its minimum and maximum values, and other settings, are kept in a resource of type ‘CNTL’, also known as a *control template*. The colors of a control are kept in another (optional) resource, the Control Color Table, of type ‘cctb’.

Resorcerer’s Control Editor edits ‘CNTL’ resources as its major resource and the color table (‘cctb’) as its minor resource. The ‘cctb’ resource is considered related to the ‘CNTL’ whenever both resources have the same resource ID.

Note: The Control Editor only accesses the first four standard colors of the color table; for custom controls with more colors, you will need to open the ‘cctb’ resource alone, using either the dedicated Color Lookup Table Editor, or a template via the Data Editor. For more on this, see the “Color Lookup Table Editor” or “Custom Resources” chapters.

When your application asks the Mac’s Dialog Manager to display a dialog with Control items in it, the Dialog Manager looks for ‘CNTL’ resources whose resource IDs are stored in the Control item data. The ‘CNTL’ resource, in turn, contains a *procID* field that includes the resource ID of the control’s ‘CDEF’, which the Control Manager (called by the Dialog Manager) automatically uses to implement the control.

CREATING A NEW CONTROL TEMPLATE

If you are viewing resources in Resorcerer’s File Window, click on the **New** button or choose **New Resource** from the **File** menu. If the Types List is the Active List, Resorcerer will ask you to specify the resource ID prior to creating the resource; otherwise, it will use the next free resource ID available for ‘CNTL’ resources. The resource ID at which the search begins is specified in the **Resource ID Preferences** section of the **Preferences** dialog (for more on this, see the “Preferences” chapter later in this manual). Usually, the starting ID is 128.

When you are already viewing an open ‘CNTL’ resource, you can choose **New Resource** from the **Resource** menu. Resorcerer will assign the next free ID automatically.

You can also create a new 'CNTL'/'cctb' resource set from within Resorcerer's Dialog Editor. When you open the item information window for a Control item in a dialog's item list, you can click on the **Edit** button to create (or open, if it already exists) the 'CNTL'/'cctb' with the resource ID specified in the Item's information.

Sorcery: Option-double-clicking on a Control Item in the dialog you are editing will create (or open) the referenced 'CNTL'/'cctb' directly. Any new 'CNTL' created this way has its bounding box set to the same value as the dialog control item's bounding box.

Once the new resource set has been created, the Editor opens it so that you can edit the various fields in the resource set.

OPENING A CONTROL TEMPLATE

Select the control template ('CNTL') resource you want to open in the Resources List of your File Window and click on the **Open** button, or double-click directly on the resource entry.

Note: If you try to open the Control Color Table ('cctb') resource, Resorcerer will ask you if you want to open it along with its major 'CNTL' resource, or by itself. If you don't care about the color table, or you are only interested in the four standard control colors, then you will want to open the 'CNTL'.

When the 'CNTL' resource has no related 'cctb' resource, the Editor will temporarily create a new color table with default entries and add it to your file. Resorcerer will delete the optional 'cctb' resource when you close the 'CNTL', unless you make any changes to the colors while the table is open.

You can also open a 'CNTL'/'cctb' resource set from within Resorcerer's Dialog Editor. When you open the item information window for a Control Item in a dialog's item list, you can click on the **Edit** button to open (or create, if it doesn't exist) the 'CNTL'/'cctb' with the resource ID specified in the Item's information.

Sorcery: Option-double-clicking on a Control Item in the dialog you are editing will open (or create) the referenced 'CNTL'/'cctb' directly.

EDITOR WINDOW LAYOUT

The Control Editor displays all the values of the ‘CNTL’ resource, as well as the first four colors of the related color table in its editing window.

The screenshot shows the 'CNTL 130 from Resources.rsrc' window. It contains the following fields and controls:

- Coordinates:** X from 0 to 256, Y from 0 to 16. Width 256, Height 16.
- RefCon:** 0
- Control type:** Type: RadioButton (dropdown), ProcID: 2, Variation: 2, CDEF Res ID: 0.
- Control values:** Initial: 0, Minimum: 0, Maximum: 100.
- Control Colors:** Frame: (black swatch), Body: (white swatch), Text: (black swatch), Thumb: (white swatch). RGB: (three empty boxes) and a 'Set' button.
- Title:** Radio Button Control
- Buttons:** Cancel

At the top, you can set the window coordinates of the control’s bounding box. The width and height are updated as you change the box corners.

Note: If your ‘CNTL’ is referenced by one or more dialog Control Items in a dialog, you may want to go back and edit the item list in order to conform the size of the Control Item with the bounds of the ‘CNTL’ you’ve just changed. This is easy to do with the Dialog Editor’s **Use Best Size** command.

The Dialog Editor can also be configured to force any referenced ‘CNTL’s bounds to conform with the Control item that refers to it.

The **refCon** field can contain any long word value for whatever purposes your application wants to make of it. If you don’t use the reference constant, simply set it to 0. The field will accept either decimal numbers or hex (if preceded with a ‘\$’).

To choose from among the standard control types, use the **Type** popup menu. Initially, this menu contains entries for the standard system-provided controls: buttons, checkboxes, radio buttons, popup menus (under System 7 only), scroll bars, and some of their common variations. Each entry in the menu installs a different *procID* number into the **ProcID** field. This field actually encodes two different

- Button
- CheckBox
- RadioButton
- ScrollBar
- ✓ Pop-up
- Pop-up (fixed width)
- Pop-up (AddResMenu)
- Button (window font)
- CheckBox (window font)
- RadioButton (window font)
- Pop-up (window font)

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numbers, the variation code (0-15) in the low order 4 bits, and the Control Definition Function ('CDEF') resource ID in the upper 12 bits. The Editor automatically decodes the procID into these two fields, which you can edit individually if that's easier.

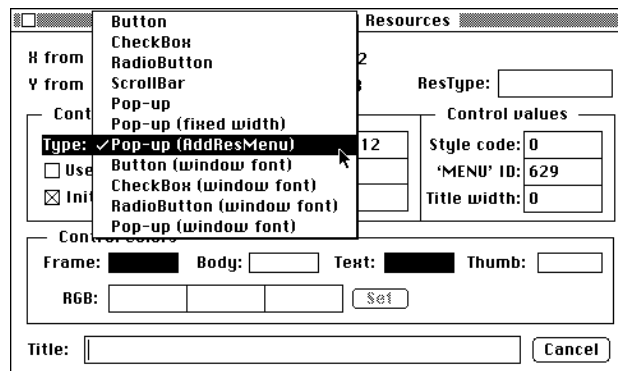
Sorcery: If you use a variety of custom controls in your work, you can add entries to the popup menu to extend the set of standard procID values the Editor knows about. To do this, make a copy of Resorcerer and use it to edit your original. Open the menu named "Standard Controls", and add an entry consisting of the title of your custom control, followed by a vertical bar ('|'), followed by the digits of the associated procID. (The Control Editor strips the numbers so that you don't see them in the menu when you use it.)

The standard system controls display their titles, if any, in the System font, regardless of the current font being used in the window where the control is being drawn. However, you can check **Use Window Font** to set the high order bit of the **Variation** code (i.e. to add 8 to the code), which asks the standard Control Definition Function to use whatever the window's current font is. Your custom 'CDEF's should also follow this convention, although it is not mandatory.

Usually, you will want **Initially visible** to be set. If not, the control won't be displayed when you create it in your application window or dialog.

The **Control Values** panel lets you set the **Minimum**, **Maximum**, and **Initial** values of the control. These are all kept in 16-bit words, so the range of these values must be [-32768,32767].

If you are using the System 7 Popup Menu control, the minimum, maximum, and initial value fields in the 'CNTL' take on different meanings, and the Editor changes field titles accordingly. For AddResMenu popups, the **refCon** field also changes in order to accept the type of the resources whose names should be added to the popup menu the control builds. The operation of the Popup Menu control is documented in Apple's *Inside Macintosh*.



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The **Control Colors** panel displays the first four colors in the control's color table. To change any one of them, click on the box of color to select it. This installs its red, blue, and green color component values in their editing boxes, which you can change directly. If your computer has Color Quickdraw, however, it is easier to use the Mac's Standard Color Picker. To do so, click on the **Set** button, or double-click directly on the color box.

As with all color boxes in other Resorcerer Editors, you can **Copy** and/or **Paste** from or into the currently selected color box. This makes it much easier to color-coordinate your control with your windows or menus.

Note: For the Control Items in a dialog or alert, you can specify certain control colors that are kept in the dialog's item color table ('ictb') resource. Currently, if the 'CNTL' that the dialog's Control Item refers to has a color table ('cctb') of its own, the Dialog Manager will ignore the 'cctb' in favor of the colors in the 'ictb' resource.

Finally, the **Title** field at the bottom of the Editor window lets you set the title of your control, if it has one.

DECOMPILING A CONTROL

The Control Editor will decompile both the 'CNTL' and the 'cctb' resources that it opens simultaneously. It places the decompiled Rez source text directly into the Mac clipboard so that you can switch to your development system's text editor and paste the resource declarations into your Rez source file.

To do this, make sure that no text or color boxes are selected, and choose **Copy** from the **Edit** menu.

Although the Editor only affords access to the first four standard control colors, if the 'cctb' resource contained other colors, they will be included unchanged in the resource decompilation.

TRYING A CONTROL OUT

To try a control out, you need to use the Dialog Editor's **Try Out** command.

After you have set the various fields in the 'CNTL'/'cctb' resources, create a simple dialog with a Control item in it. Make sure the resource ID the item refers to is the same as the 'CNTL'. Also, it is usually a good idea to conform the dialog item bounding box to that found in the control template, which is easy using the Dialog Editor's **Use Best Size** command.

Then choose the **Try Out** command to run the dialog. The Dialog Manager will build the control using the information in the 'CNTL' resource.

Note: You may have to close the 'CNTL'/'cctb' editing session for the Dialog Editor to pick up the latest changes you've made. When you have finished trying the control out, you can re-open its editing session easily when you Option-double-click on the Control item in the dialog.

FINDING ALL DIALOG ITEM REFERENCES

Before you delete a 'CNTL' resource, or change its ID, it may be necessary to ensure that you don't leave a dangling resource ID reference in a dialog or alert's item list ('DITL') resource.

The **Find Dialog Item References** in the **Control** menu opens all dialog item lists in the same file as an open 'CNTL' that contain such a reference. You can then change the Control item's resource ID, change the item type, or delete the item depending on what you are doing with the control.

CLOSING A CONTROL TEMPLATE

When you have finished editing, click in the editing dialog's GoAway box to close the control template and its related color table. This saves any changes you have made to Resorcerer's in-memory copy of your file.

If you don't want to save the changes you've made since opening the individual resources, click in the **Cancel** button.

Depending on how your preferences are set, Resorcerer may confirm with you whether to save or discard your changes (for more on this, see the "Preferences" chapter later in the manual).