

Centaur

Feature Specification
Draft III - 9/20/97

New Features:

Centaur will be the first new version of Streamline to feature significant enhancements to the tracing engine. These enhancements improve the quality of the tracing results, and should help in reducing the resistance that some users have to using Streamline. Also, a range of new color conversion options will enable the use of Streamline as a creative tool as well as a production-oriented utility.

Improved path matching

Pegasus includes a “Separate Shapes” option which automatically traces a line twice when two areas share the same border. This option ensures that the converted image has two, separate, enclosed shapes along this border. Centaur will ensure that the two paths along this border match exactly, even, to the extent possible, when anchor points are deleted in post-processing. These improved path-matching capabilities will also be applied to posterization. In Pegasus, a posterized illustration consists of regions of color that don’t necessarily border each other exactly, resulting in undesirable gaps in the converted image. Centaur will ensure that a posterized image has virtually no gaps between the color regions.

Expanded color options for posterization

Color and grayscale posterization in Centaur has been significantly overhauled. Enhancements include the following:

- Posterize an image using a set of pre-defined custom colors, such as Pantone colors. If desired, tints of these colors can be generated automatically. Using tints of a single color can result in an effect similar to a photographic duotone.
- Posterize using an unlimited number of colors. Unlike Pegasus, Centaur will be able to create a fill color for each region independently when this option is used, resulting in better color matching with the original image.
- Using a “Complexity” slider, the user can control how finely Centaur distinguishes between color regions and how many paths are created as a result.
- Pegasus always assigns colors to paths by averaging the colors of all of the pixels in that region. This can result in muddier colors when images are noisy or heavily dithered. In Centaur, this color averaging can be disabled.

Cleanup tools

In Pegasus, the only editing that can be performed on converted vectors is the deletion of points. Centaur adds tools for adding points, moving points and curves, and also for automatically converting segments to curves, circular arcs, lines, and vertical/perpendicular lines. These tools make it easy to correct for tracing errors resulting from poor scans.

Multiple conversions

Sometimes different areas of an image are best suited to different conversion settings, but Pegasus only allows an image to be converted using a single setting. Centaur will allow the user to interactively select regions of the source image and convert them using different settings. The final, converted artwork can be built up through a series of successive traces, ensuring the best possible trace on all portions of the image.

Interactive line thinning

In Pegasus, the Centerline method often requires that lines in an image be “thinned” by stripping away pixels from either side of the line. The best quality tracing occurs when all lines are thinned to a one pixel thickness. The resulting image “skeleton” is used as the basis for the autotrace, even though the final thickness of the lines may be based on the original image. The user must choose the number of thinning steps prior to conversion. Too few steps may result in an imperfect trace, while too many steps can shorten the length of the lines.

Centaur will provide an “interactive thinning” option that gives the user more control over this process. With interactive thinning, the user can perform thinning steps one at a time, viewing the results of each on the image. The user also can edit the resulting image skeleton before completing the conversion, ensuring that lines that were unexpectedly shortened or distorted are traced correctly.

Smooth direction points function

While smooth points are much easier to edit, an autotrace program tends to create most, if not all, points as corner points. Centaur will include a function, with three different tolerance levels, that will convert corner points that are almost parallel into true, smooth points.

Secondary New Features in Centaur

User-selectable scratch disk

Instead of always defaulting to the startup disk, Centaur will allow the user to specify the disk to use as a scratch disk, providing more flexibility to those whose startup disks are full.

Thumbnail preview in Open dialog

Similar to Photoshop, Centaur will allow the user to preview an image before opening it.

Improved color import/export

Pegasus could only import color palettes, or styles, from Illustrator files. Centaur will allow users to selectively import colors from an Illustrator file, and also selectively export color palettes created within Centaur. A default color file can be created to be used each time Centaur is launched.

Pop-up menu in paint style dialog

Many of the color functions are made more accessible via this pop-up menu. New options include Keep Tints, which lets a new custom color be applied to multiple selected objects without altering their original tint values. The Keep Tints option is especially useful when applying colors to a grayscale posterization.

Centaur User Interface

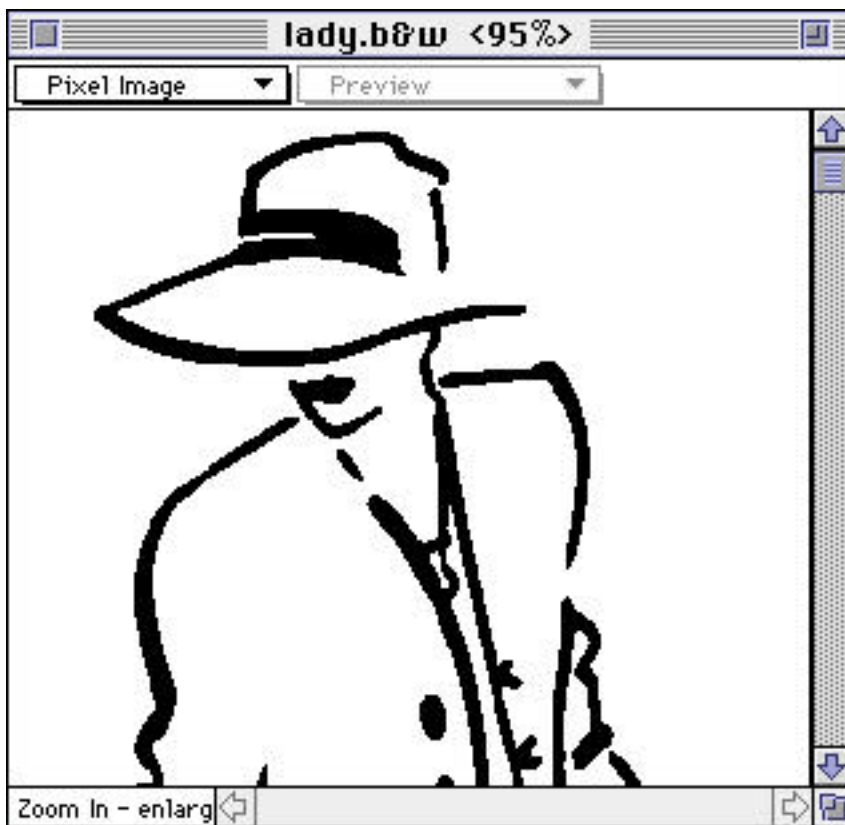
Following is the Centaur interface. Only those items that have been changed from Pegasus are described in detail.

Main Image Window

Unlike Pegasus, Centaur will allow a series of conversions to be done on a single source image, combining each conversion into a single illustration file. This ability makes it possible to convert different regions of an image using different conversion settings. The final illustration can be built up as a series of successive conversions.

In Pegasus, there are two image modes: raster and vector. When a file is first opened, the user is in raster mode, and can edit the bitmap prior to conversion. Converting an image automatically changes the mode to vector. The only way to return to raster mode after a conversion is to undo the conversion or open a new file.

Centaur requires giving the user control over these modes, so that he/she can return to raster mode multiple times to convert different portions of the image. To make it easier to switch between modes, the image window will be modified as follows:



The window now features an area at the top with two pop-up menus. The pop-up menu on the left is for switching between raster and vector modes, and includes the following options:

Pixel Image

This is the bitmap image prior to conversion. It is based on the original source image, but will include any edits that have been performed since the file was opened.

Converted Art

This is the converted artwork consisting of vector paths.

Template

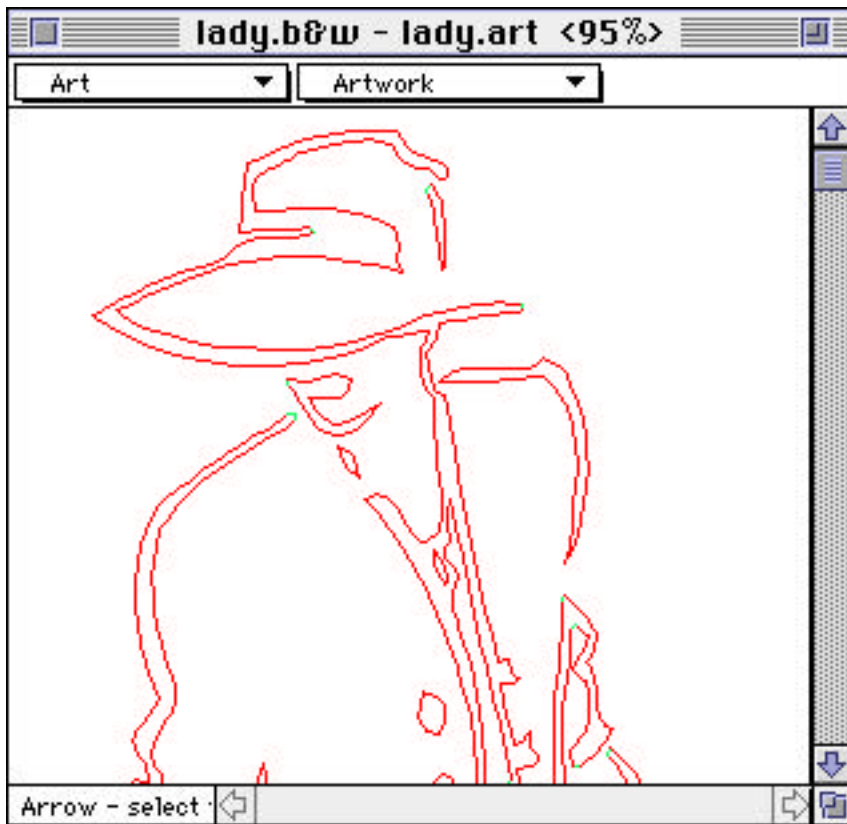
This mode is comparable to enabling the “Show Template” command when in vector mode in Pegasus. The converted artwork is displayed on top of the pixel image, but only the converted artwork is editable in this mode.

When a file is first opened in Centaur, the image window will be in Pixel Image mode. The pop-up menu will be available, but Art and Template will both be disabled choices.

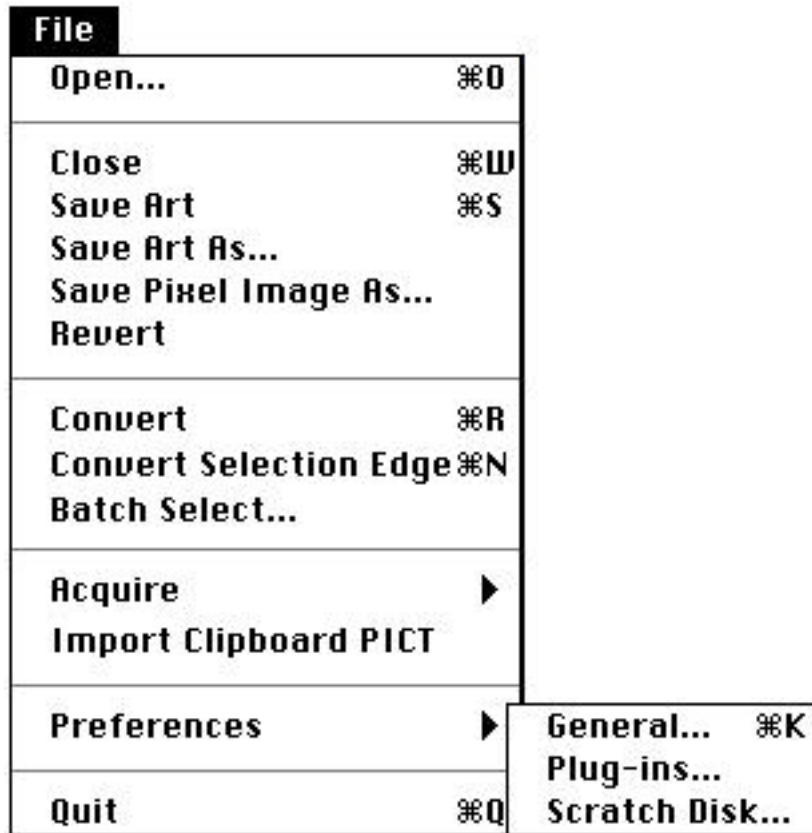
After a file is converted, the mode of the image window will automatically change to Art. Now, all three items in the pop-up menu will be available. If the user chooses Template, the display in the image window will change to show the pixel image as a template behind the converted artwork, but nothing else will change. If the user chooses Pixel Image, the current converted artwork will be stored prior to displaying the bitmap image.

In most cases, selection regions will be remembered when the user switches between modes. In other words, when the user returns to viewing the pixel image, the same areas should be selected as when he/she last viewed the image. Likewise, when the user returns to viewing the converted artwork, the same objects should be selected as were selected when the artwork was last viewed.

The second pop-up menu controls the preview mode for vector artwork. As in Illustrator, the choices are Preview (view all objects with fills and outlines), Preview Selected (view only selected objects with fills and outlines), and Artwork (view only object outlines). This second pop-up menu does not apply when the window is in Pixel Image mode, so it is greyed out.



File Menu



The File menu has three changes from the one in Pegasus. The Import Styles command has been removed, because this function is now integrated into the Paint Style palette. The Convert Selection Edge command is a new addition to the menu, as is the Scratch Disk option in the Preferences sub-menu.

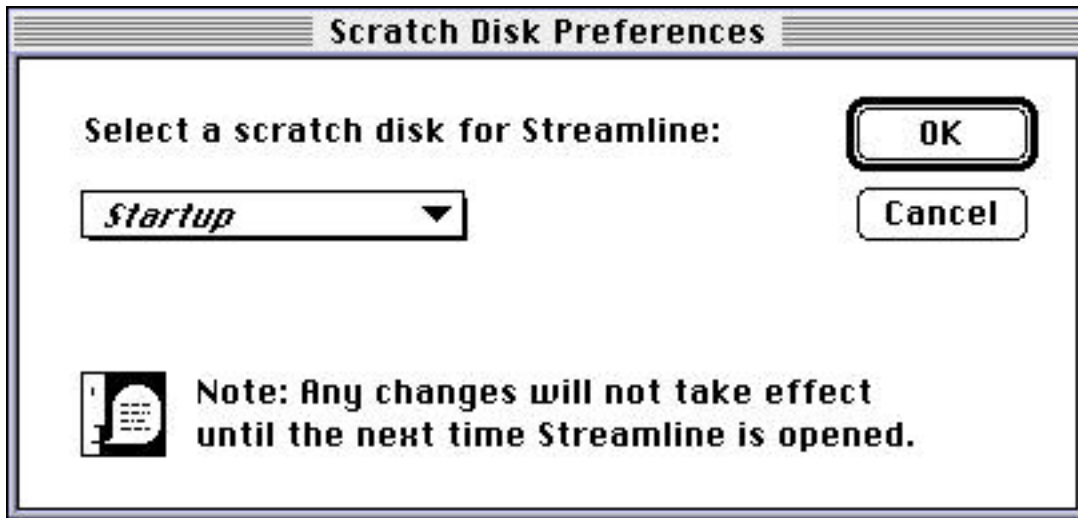
Convert Selection Edge

Essentially the same thing as performing a conversion in Pegasus with “Convert Selection Edge” enabled in the Color/Grayscale Setup dialog. This command is greyed out when no region of the current pixel image is selected. When Outline is the current conversion method, this command creates a filled path out of the current selection region. When Centerline is the current conversion method, this command creates a stroked but not filled path out of the current selection region. The keyboard shortcut for this option is [Command]-N.

Preferences/Scratch Disk...

Pegasus uses a scratch disk while performing conversions, but the scratch disk is always the same as the startup disk, and there is no way for the user to control this. On systems

where the startup disk does not have very much free space, this can impose limitations. Centaur allows the user to change the scratch disk, if desired:

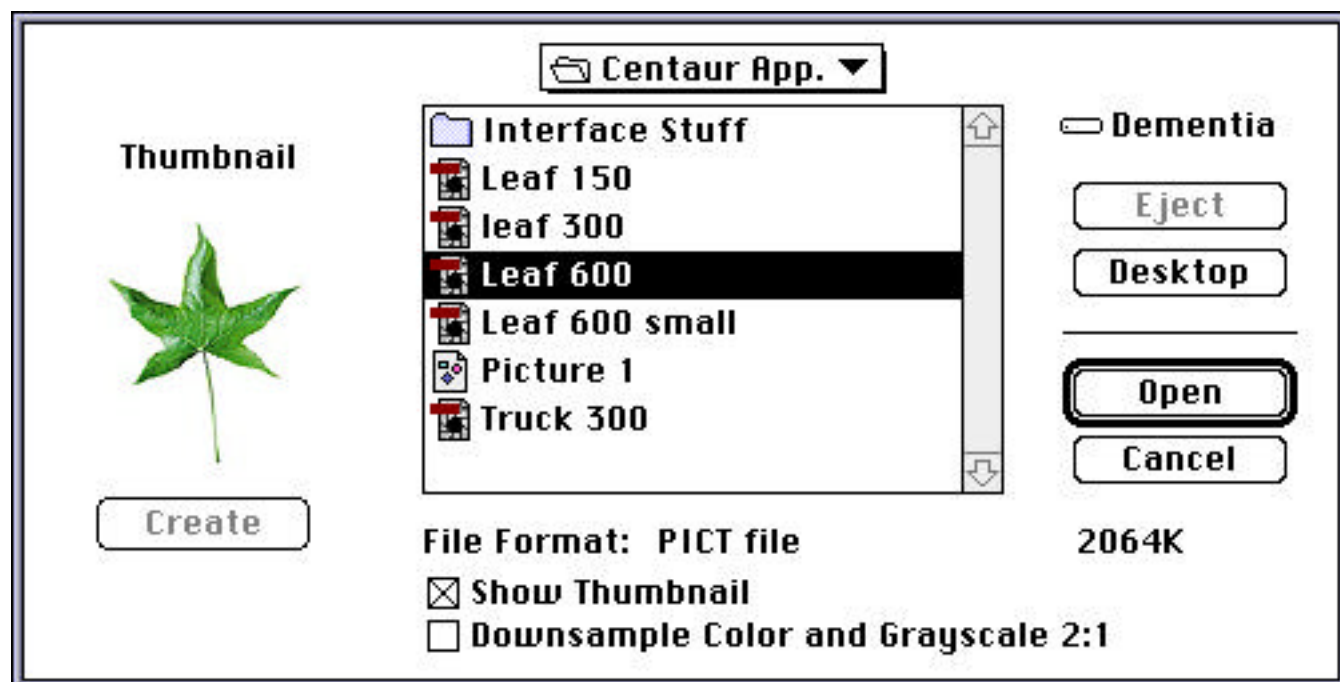


The pop-up menu lists all of the drives that are available to the system. The chosen scratch disk preference is saved in the preferences file and used the next time that Centaur is run. If the chosen scratch disk is no longer available, then the scratch disk will revert back to the Startup disk.

There are two dialogs reached via the File menu that have been modified in Centaur:

Open dialog

Centaur will feature a revised Open dialog that includes a thumbnail preview option similar to the one available in Photoshop.



Show Thumbnail

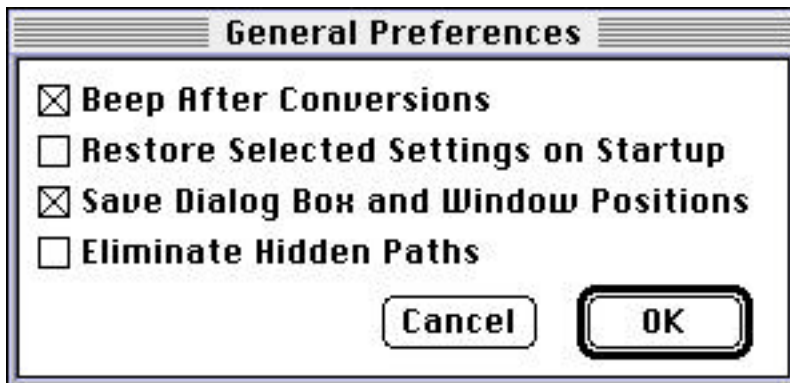
Enabling this checkbox displays an image thumbnail, when available, for any selected image file. The thumbnail appears on the left side of the dialog. When this checkbox is disabled, the size of the dialog shrinks, and the thumbnail preview area is removed.

Create

Clicking this button creates a thumbnail for the currently selected image file.

Preferences/General...

The General Preferences dialog now has one new option:



Eliminate hidden paths

When this checkbox is enabled, multiple conversions of an image will not result in one path that completely obscures one or more paths from an earlier conversion. Any pre-existing paths that are completely obscured by the new conversion region are automatically deleted. This checkbox is enabled by default.

Edit Menu

| Edit | |
|-------------------------|----|
| Undo | ⌘Z |
| Cut | ⌘H |
| Copy | ⌘C |
| Copy Special | |
| Paste | ⌘V |
| Clear | |
| Select All | ⌘A |
| Select None | ⌘D |
| Select Inverse | |
| Grow Selection | ⌘G |
| Select Similar | |
| Adjust Levels... | ⌘L |
| Smooth Paths | ▶ |
| Smooth Direction Points | ▶ |
| Convert To | ▶ |
| Fill | ⌘F |

| | |
|---------|----|
| Minimum | ⌘4 |
| Medium | ⌘5 |
| Maximum | ⌘6 |

| | |
|-----------|----|
| Circle | ⌘7 |
| Oval | ⌘8 |
| Square | ⌘9 |
| Rectangle | ⌘0 |

There are two new items on this menu: Smooth Direction Points and Convert To. Both of these items have sub-menus.

Smooth Direction Points

In order to trace curves as closely as possible, Centaur, like Pegasus, creates most points as corner points rather than smooth points. Converting direction points that are almost parallel into smooth points can result in a more easily editable path that is only slightly less accurate. It can also result in a file that prints more cleanly. The Smooth Direction Points command will scan paths for points that are at nearly 180 degrees from each other and convert these into smooth points. The Minimum, Medium, and Maximum options differ in the amount of tolerance allowed. These commands apply to the currently selected paths or, if no paths are selected, to all of the paths in the artwork. Each of these options has a keyboard shortcut, as illustrated above.

Convert To

This menu item is for cleaning up converted paths by converting them into standard shapes. The choices in the sub-menu are Circle, Oval, Square, and Rectangle. In each

case, the selected path will be converted to the chosen shape at a size that most closely matches the original proportions of the object.

View Menu

| View | |
|-------------------|-----|
| ✓ Preview | ⌘Y |
| Artwork | ⌘E |
| Preview Selection | ⌘⇧Y |
| <hr/> | |
| Zoom In | ⌘+ |
| Zoom Out | ⌘- |
| Actual Size | ⌘H |
| Fit In Window | ⌘M |
| <hr/> | |
| Hide Toolbox | ⌘⇧T |
| Show Info | ⌘⇧I |

This menu is unchanged from Pegasus, with the exception that some keyboard shortcuts have been added for greater consistency with Illustrator:

[Command]-[Option]-Y: Preview Selection

[Command]-[Control]-T: Hide/Show Toolbox

[Command]-[Control]-I: Hide/Show Info

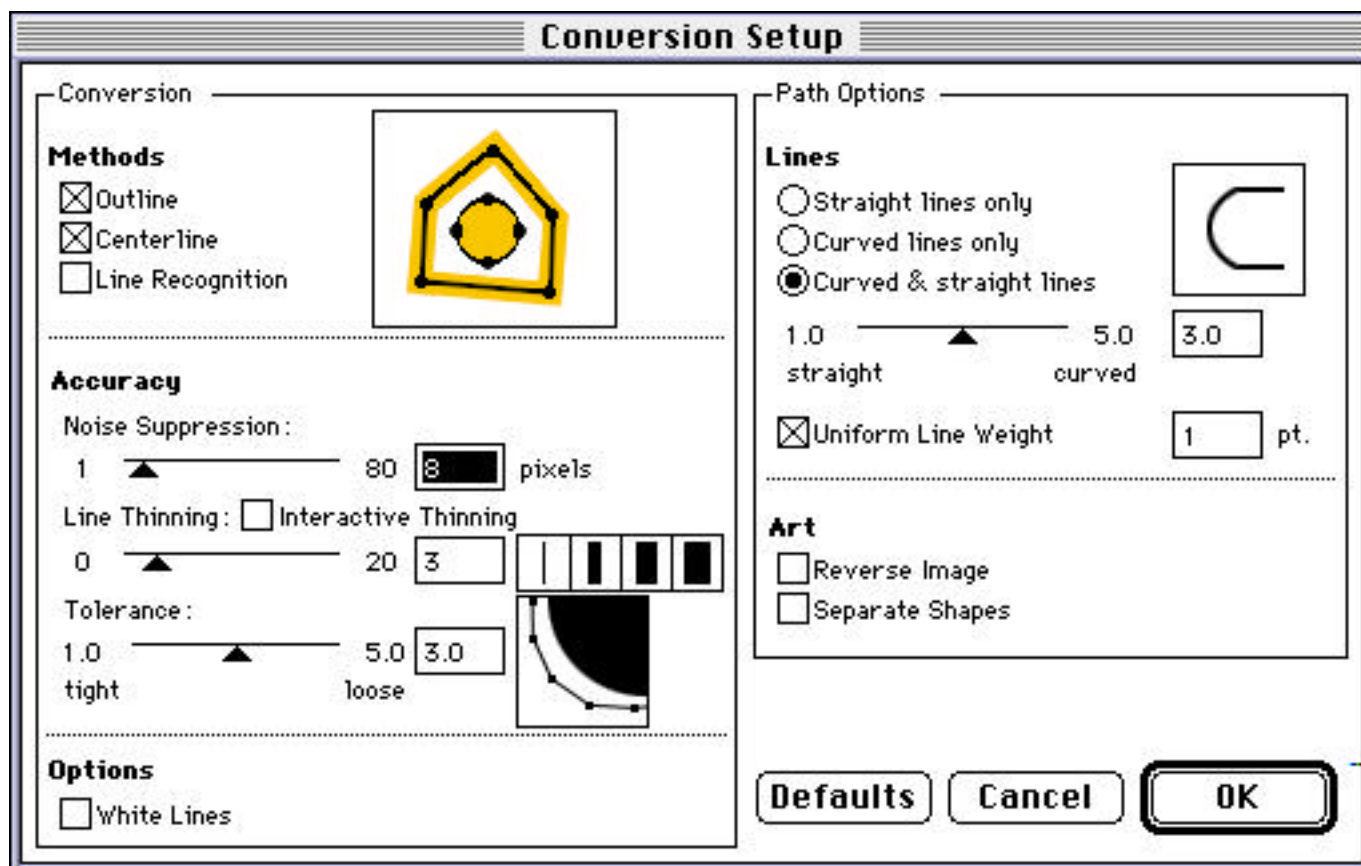
Options Menu

| Options | |
|--------------------------|----|
| Settings... | ⌘T |
| Conversion Setup... | ⌘J |
| Color/Grayscale Setup... | ⌘B |
| <hr/> | |
| Paint Style... | ⌘I |
| Custom Color... | ⌘U |

This menu is unchanged, but there are a number of changes to the dialogs that are reached via this menu.

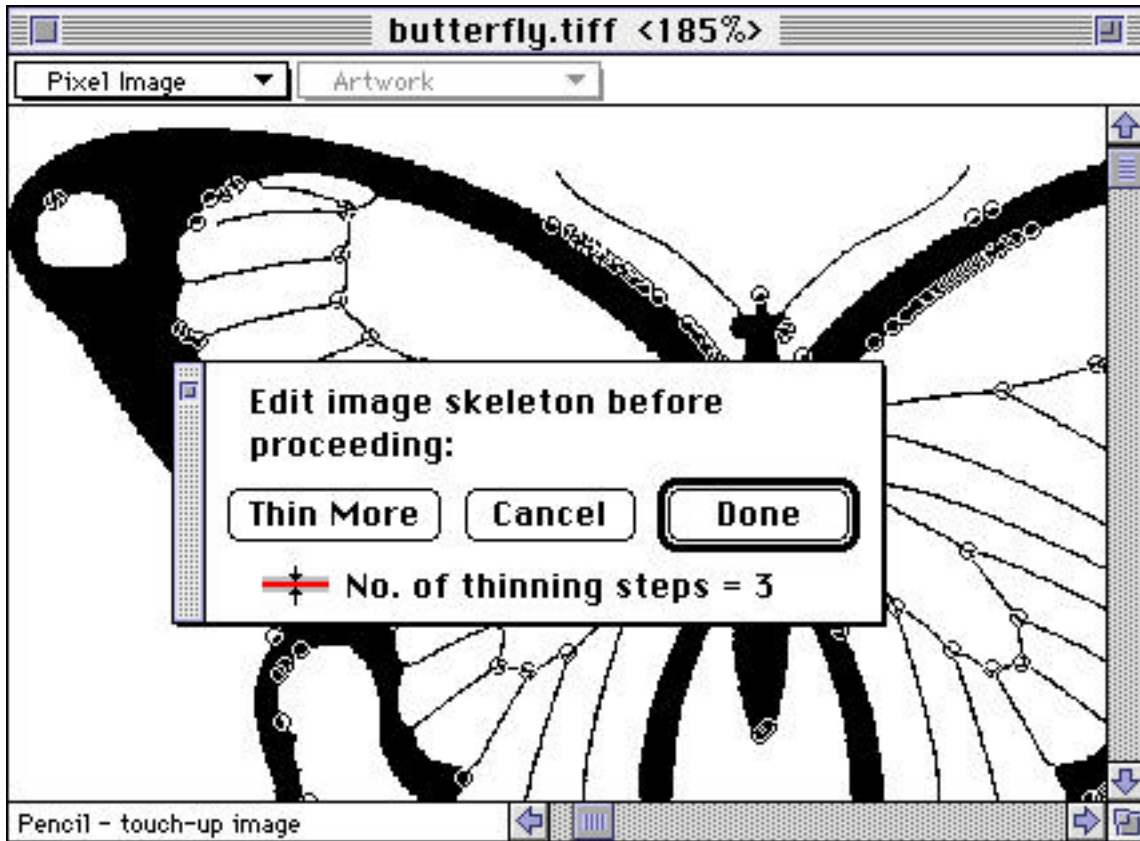
Conversion Setup

Centaur includes one new option in the Conversion Setup dialog—Interactive Thinning.



Interactive Thinning

Enabling this checkbox allows greater control when using the Centerline method of conversion. Line thinning is the process of stripping away layers of pixels from a line in order to find the center of the line. Stripping away too many layers can shorten the line, while stripping away too few layers can cause inaccuracy in the conversion. During conversion, if interactive thinning has been enabled, Streamline will pause after the number of thinning steps indicated by the Line Thinning slider have been completed. The image window, with the interactive thinning dialog on top of it, will look as follows:



At this point, the original bitmap will probably have been modified by the thinning steps already taken. Using the standard bitmap editing tools, the user can edit this modified image to correct any potential problems in the image. For example, if too much line thinning shortened the length of a line, it can be extended, and if two lines seem to be meeting at an odd angle, the intersection can be edited.

The interactive thinning dialog contains the following choices:

Thin More

Clicking on this button causes the lines in the image to be thinned by one more pixel, and then returns the user to interactive thinning mode.

Cancel

Clicking on this button cancels the image conversion and returns the user to Pixel Image mode.

Done

Clicking on this button accepts all changes and completes the conversion process.

At the bottom of the interactive thinning dialog, a status line will indicate the total number of thinning steps that have been taken. This number initially will equal the

number of steps defined in the Conversion Setup dialog, but will then increment each time the Thin More button is clicked.

During interactive line thinning, most menu items will be unavailable, with the following exceptions:

File menu: Save Pixel Image As...

Edit menu: Undo

View menu: Zoom In, Zoom Out, Actual Size, Fit in Window, Show/Hide Toolbox, Show/Hide Info

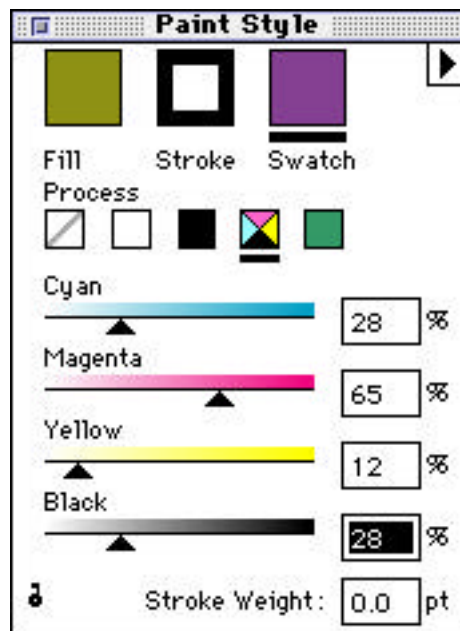
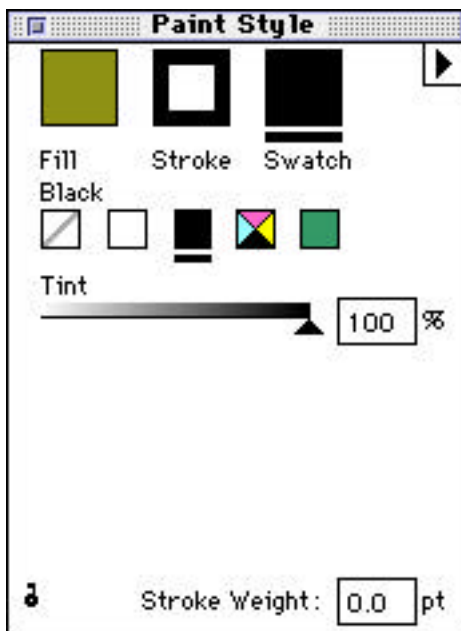
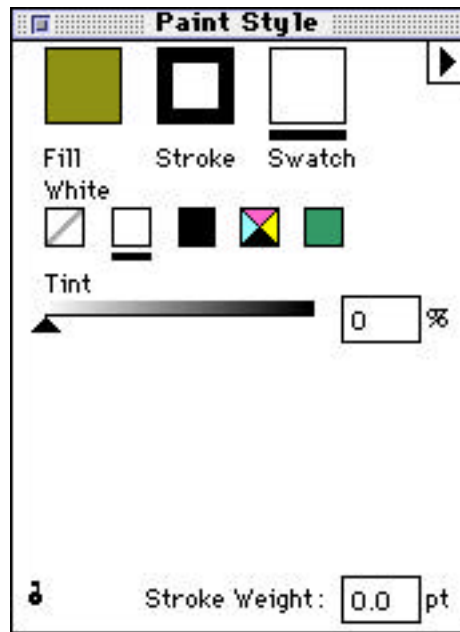
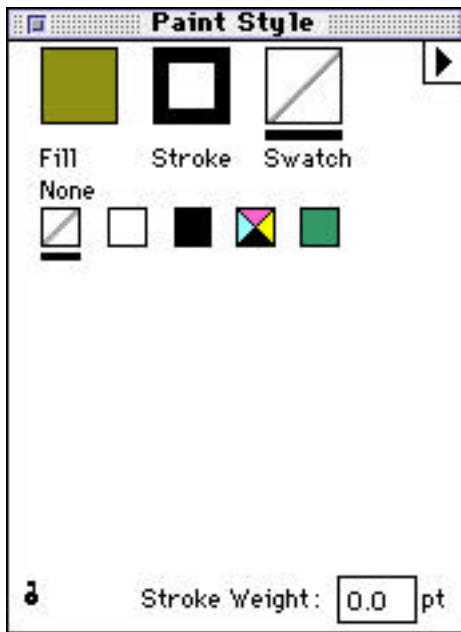
Note: The Undo command in the Edit menu will also be able to undo the effects of the Thin More button.

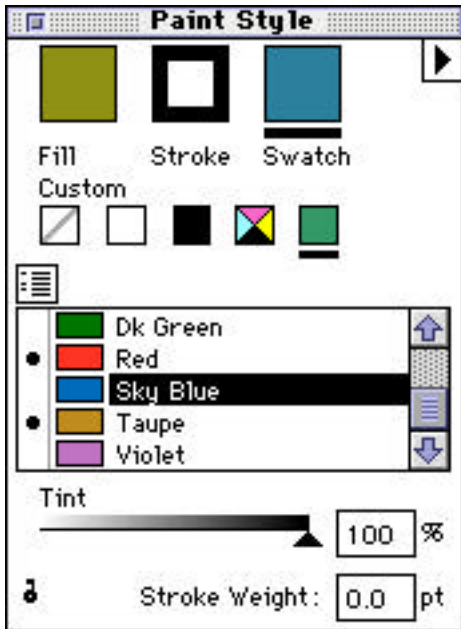
Paint Style...

The Paint Style palette in Centaur differs in several ways from the one in Pegasus. The changes can be summarized as follows:

- A pop-up menu button has been added to the top of the palette.
- The Auto checkbox and Apply button have been removed, and Auto Apply is now the default mode of operation.
- Some functions of the Custom Color dialog in Pegasus have been integrated into the Paint Style palette of Centaur.
- Custom Colors can now be tagged with a bullet. Marking the colors in this way allows the user to specify a subset of the custom color list for use in posterization or export.

Below is a depiction of the Paint Style palette in all five color modes (none, black, white, CMYK, and custom):



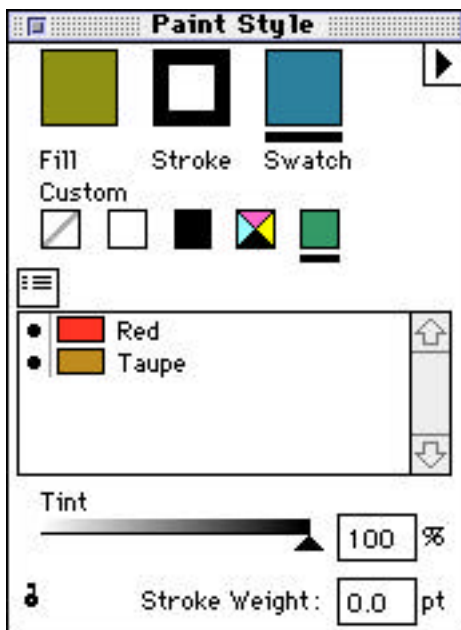


The general layout of these palettes is the same as in Pegasus. The Auto checkbox and Apply button are gone, and the lever for expanding the dialog has been moved to the left side of the palette.

Each of these versions of the Paint Style palette works as it does in Pegasus. When a new color is chosen, it is automatically applied to any selected object (unless the Auto Apply option in the pop-up menu has been disabled).

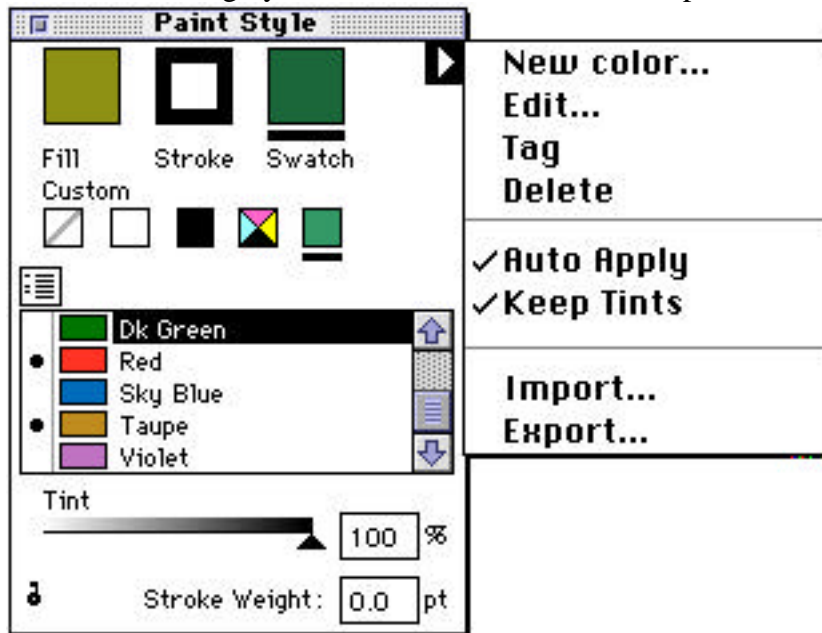
The custom color version of the Paint Style dialog has more changes, because it now allows you to mark a subset of the color list for use in posterization.

Clicking the mouse in the left column of the custom color scroll list toggles a bullet on or off in that column. In this way, a subset of the total custom color list can be “tagged” for export or for use in posterization. Clicking on the icon above the bullet column toggles between showing all colors or showing only tagged colors. Notice that the icon changes to represent what is being shown in the list.



[Note: If your current view is tagged colors only, and you “untag” one of the colors, the color does not disappear from the list. The color should be greyed-out, so that the user can click again to re-tag it. If the color is not re-tagged, then the color will no longer appear once the user exits the “tagged-only” view and returns.]

The pop-up menu is essentially the same for all five versions of the Paint Style palette, but certain items are greyed out for some versions of the palette:



New color...

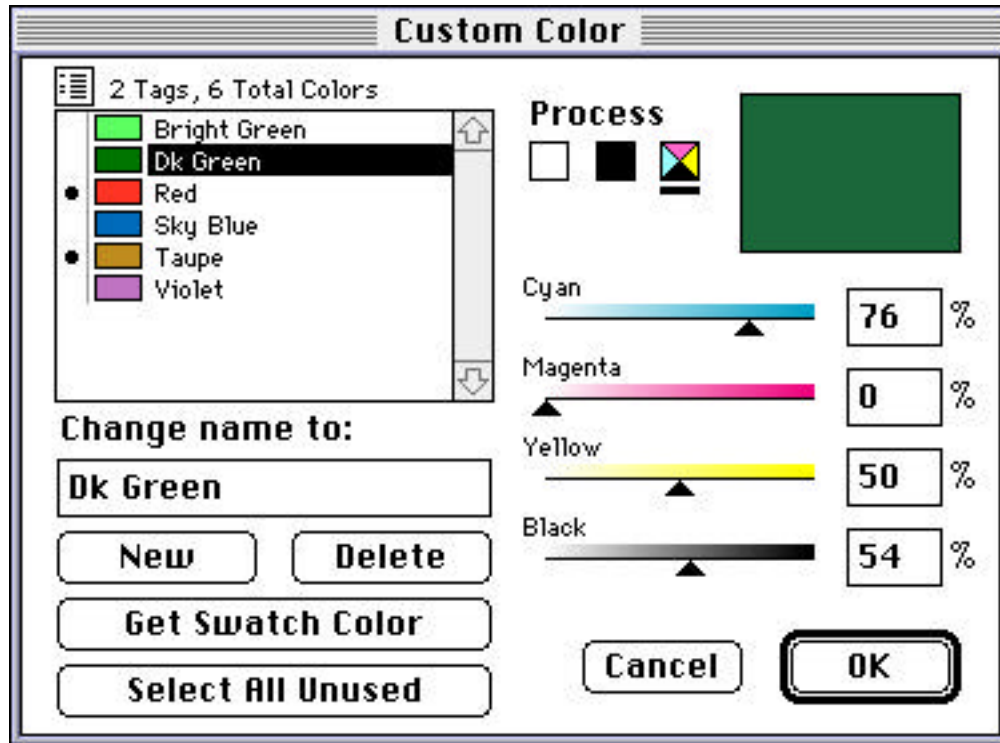
When the paint style palette is in custom color mode, this menu item calls up the Custom Color dialog (see below), with the current swatch color displayed as the current color, and “New color x ” defined as the name, where x is a unique number. When the user clicks “OK” to exit the dialog, the new color is added to the scroll list.

When the paint style palette is in any mode other than custom colors, this command is called “Save color...” and launches the Custom Color dialog with the currently defined color added to the scroll list. The name of the new color will be “New color x ,” and the name edit field should be active.

When in a mode other than custom color mode, and no color is defined, the “Save color...” command should be disabled. When in custom color mode with no swatch color defined, the “New color...” command should still be available, but white should be treated as the currently defined color.

Edit...

Brings up the Custom Color dialog, highlighting the currently selected color from the scroll list. This option is disabled when not in custom color mode. The Custom Color dialog looks just like it does in Pegasus, with the exception that the custom color scroll list has been updated to accommodate tagged colors:



The icon at the top of the scroll list works just as it does in the Paint Style dialog. It toggles between showing all colors and showing only tagged colors.

NOTE: A shortcut to this dialog is double-clicking on any color in the custom color scroll list.

Tag / Untag

Places/removes a bullet in/from the left column of the scroll list next to the currently selected color. This command will toggle based upon the current status of the selected color. This command is inactive when not in custom color mode.

Delete

This button deletes the selected color from the custom color scroll list, after displaying a confirmation dialog. This command is inactive when not in custom color mode.

Auto Apply

This option is enabled by default. Disabling this option removes the checkmark next to the menu option, and prevents any changes in the Paint Style palette from being applied to selected objects until the user hits [Return].

Keep Tints

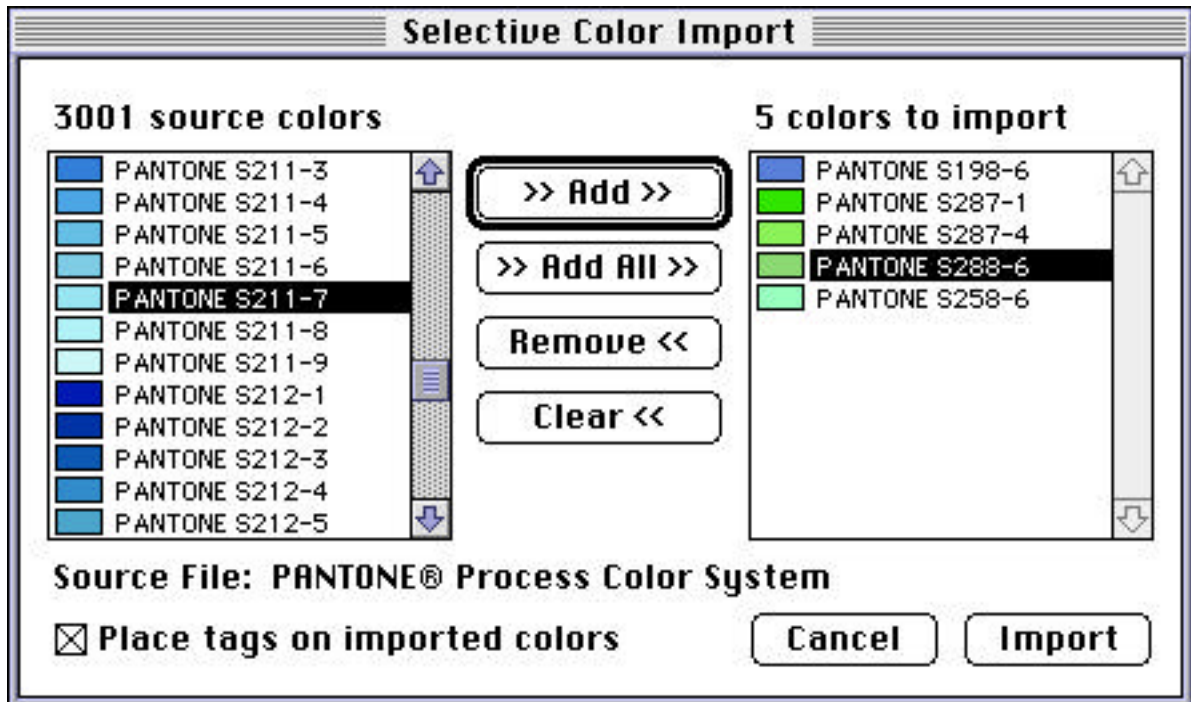
This option is enabled by default. When enabled, tint values are maintained even when an object's color is changed. (e.g. If an object is filled with 50% black, and

the user selects a custom color to fill that object, then it will be filled with a 50% tint of that custom color.)

Import...

Displays a standard file open dialog from which the user can select a file with a set of custom colors to import. The custom colors chosen will be appended to the set of custom colors currently loaded. If duplicate names are found, then a tilde (~) is added to the end of the color name being loaded. (e.g. “Red” becomes “Red~.”)

After selecting “Open” from the Open dialog, the following dialog is displayed:



This dialog allows the user to selectively choose colors to load from the selected file. The listbox on the left displays all of the custom colors contained in the file. The listbox on the right displays those colors that will be loaded. Both listboxes support multiple selections.

Add

Deletes the selected colors from the listbox on the left and adds them to the listbox on the right.

Add All

Deletes all of the colors from the listbox on the left and adds them to the listbox on the right.

Remove

Deletes the selected colors from the listbox on the right and adds them back to the listbox on the left.

Source File

Displays the name of the file containing the custom colors.

Place tags on imported colors

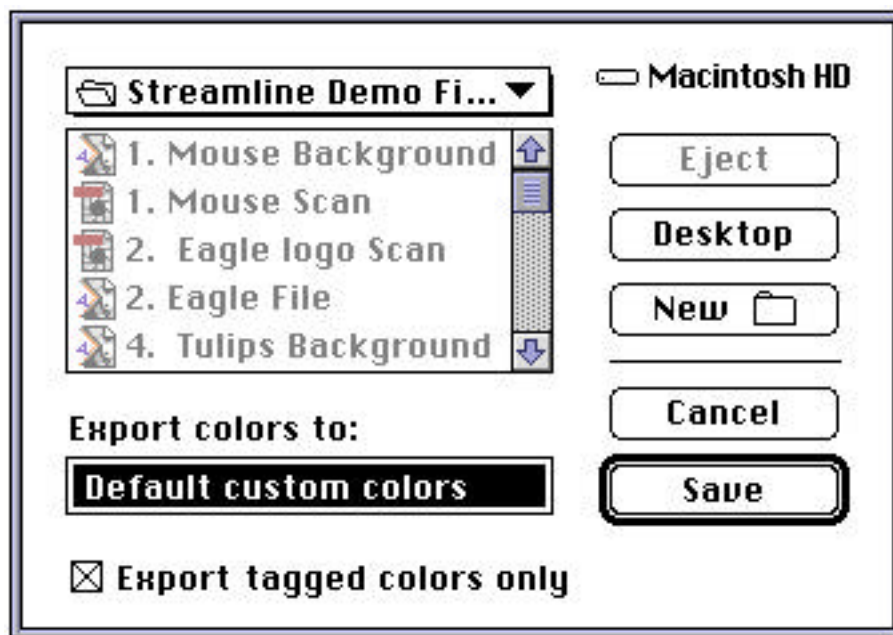
When this checkbox is enabled, all imported colors are automatically tagged with a dot in the custom color list. This makes it easy to load a few colors for the express purpose of posterization

Import

Loads all of the colors in the listbox on the right into the current document.

Export...

Displays the following dialog:



This is a standard Save dialog, with the exception of the checkbox at the bottom. The default name to save to is "Default custom colors." [NOTE: Centaur will ship with a default set of custom colors, but this internal list can be overridden with a Default custom colors file .]

Export tagged colors only

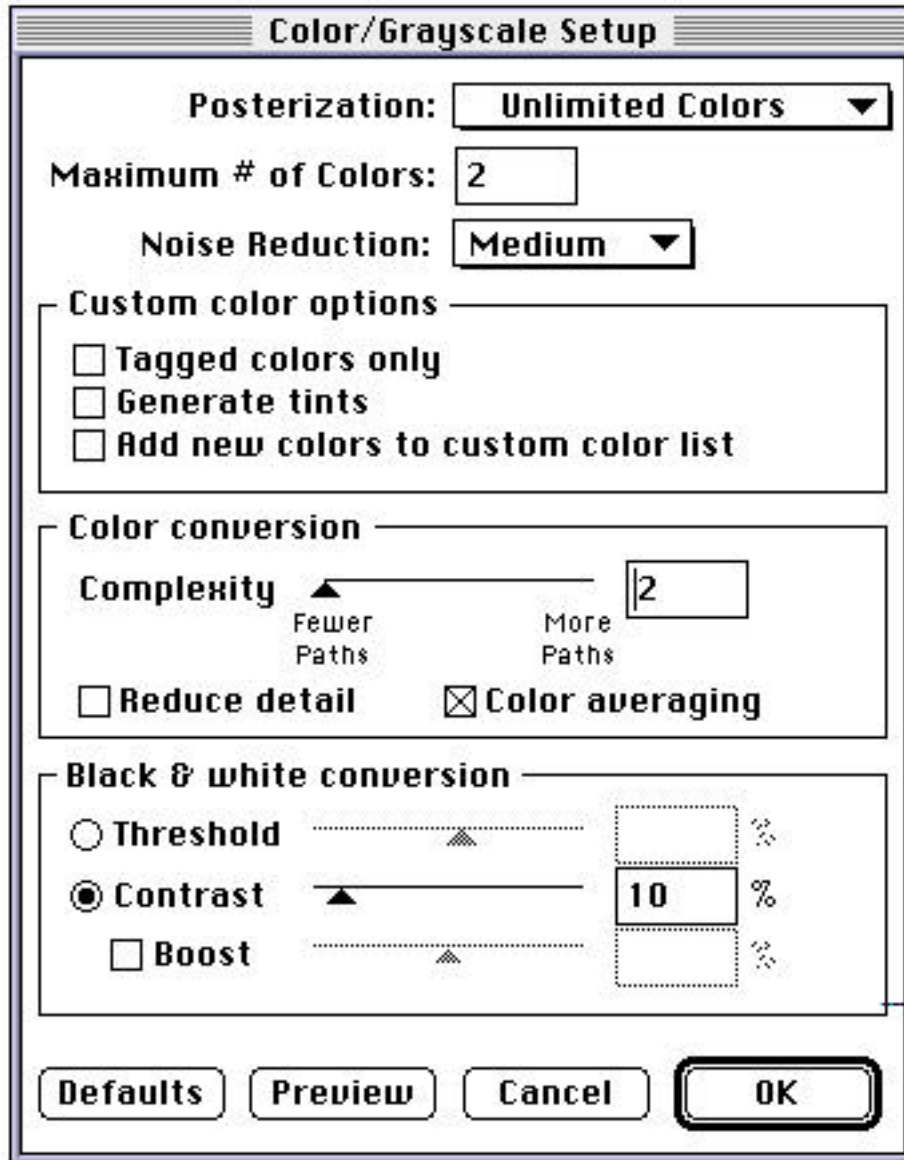
When this checkbox is enabled, only the tagged colors in the current custom color list are exported. This checkbox is disabled by default.

New Centaur Color/Grayscale Dialog

With the addition of several new options, the Color/Grayscale Setup dialog has become much more cluttered, and it may prove to be very confusing for someone who doesn't understand what all of the options mean. In redesigning the dialog, I've attempted to do three things:

1. Organize the controls logically so that related items are grouped together, and can be understood as a whole.
2. Organize the dialog so that the primary decision the user needs to make—specifically, how many colors do they want—is at the top.
3. Rename and reconfigure the controls as necessary so that they indicate the results they obtain more so than the internal procedures they change.

That said, here's the dialog. The picture that follows shows most controls as active, but, in practice, many controls will be greyed out at any given time:



Color/Grayscale Setup

Posterization: **Unlimited Colors** ▼

Maximum # of Colors:

Noise Reduction: **Medium** ▼

Custom color options

☐ Tagged colors only

☐ Generate tints

☐ Add new colors to custom color list

Color conversion

Complexity
 Fewer Paths More Paths

☐ Reduce detail ☒ Color averaging

Black & white conversion

☐ Threshold %

☒ Contrast %

☐ Boost %

Defaults **Preview** **Cancel** **OK**

Posterization

This pop-up menu is a new control that combines options that previously were contained or implied elsewhere in the dialog. The main purpose of this control is to allow users to make a simple, top-level decision when they first open the dialog. This choice will then control which other options in the dialog are applicable. The goal is to prevent users from having to deal with more information than they have to.

The options in the pop-up menu are as follows:



Limited Colors

✓ **Unlimited Colors**

Use Custom Colors

Black & White Only

Limited

This option allows the user to define a maximum number of colors to use in the drawing. The colors will be generated by Streamline

Unlimited Colors

This option will result in an unlimited number of colors being generated by Streamline, as required by the image.

Use Custom Colors

The colors in the current custom color list will be used to fill the paths.

Black & White Only

The image will be traced as two-color, black & white line art.

Maximum # of colors

This is the same as the control in the current dialog. It is only fully functional if “Limited Colors” is chosen in the Posterization pop-up menu. If “Unlimited” or “Black & White Only” posterization is selected, this control is entirely greyed out. If “Use Custom Colors” is selected, only the entry field is greyed out, and it displays the actual number of custom colors. If “Tagged Colors Only” is enabled, then only the number of tagged colors is displayed. If “Generate Tints” has been enabled, then the number of colors in the entry field should be multiplied by 10.

Noise Reduction

This is the same as Edge Smoothing in the current dialog. Now that there are several different controls in the dialog that all affect the detail and resolution of the image or resulting trace in some way, I felt it was necessary to be more specific about what each control does. This option reduces single-pixel noise by averaging adjacent pixels, so I think that Noise Reduction is a more accurate description than Edge Smoothing. Let me know if anyone disagrees.

The rest of the dialog has been organized into three groups. The first group, Custom Color Options, contains all of the controls that deal with the custom color list in some way. The second group, Color Conversion, contains controls that affect the color posterization procedure. The third group, Black & White Conversion, contains controls that affect the tracing of line art.

Tagged colors only

This checkbox forces Streamline to use only the tagged colors in the custom color palette during the conversion. This checkbox is only available when posterization popup is set to custom colors.

Generate tints

This checkbox Streamline to use up to 10 tints of the available custom colors during conversion. The tints are chosen as blends of the color and white evenly over the 0-100% white. This checkbox is only available when posterization popup is set to custom colors.

Add new colors to custom color list

This checkbox instructs Streamline to add the colors that are generated to the custom color list after conversion. This checkbox is only available when posterization popup is set to limited colors.

Complexity

This is the same thing as Granularity in the current dialog. I tried to rename this control to more closely reflect how it affects the tracing. The one consistent thing this control does, regardless of the other settings in the dialog, is increase or decrease the number of paths in the finished trace.

Reduce detail

This is the reverse of High Detail Posterization in the current dialog. We've decided to leave high detail enabled by default, and the only time someone would want to disable high detail posterization is when they want to reduce the detail in the traced illustration. Therefore, I've changed the name of the control and left it disabled by default. When this option is enabled, then the image resolution is not doubled before conversion.

Color averaging

This one checkbox takes the place of the radio buttons and proxy images for "Average color" and "Most common color." After playing with these options a bit, I've decided that they're not important enough to get so much real estate in the dialog. When "Color averaging" is enabled, the average color is used. When it is disabled, the most common color is used. This checkbox should be enabled by default.

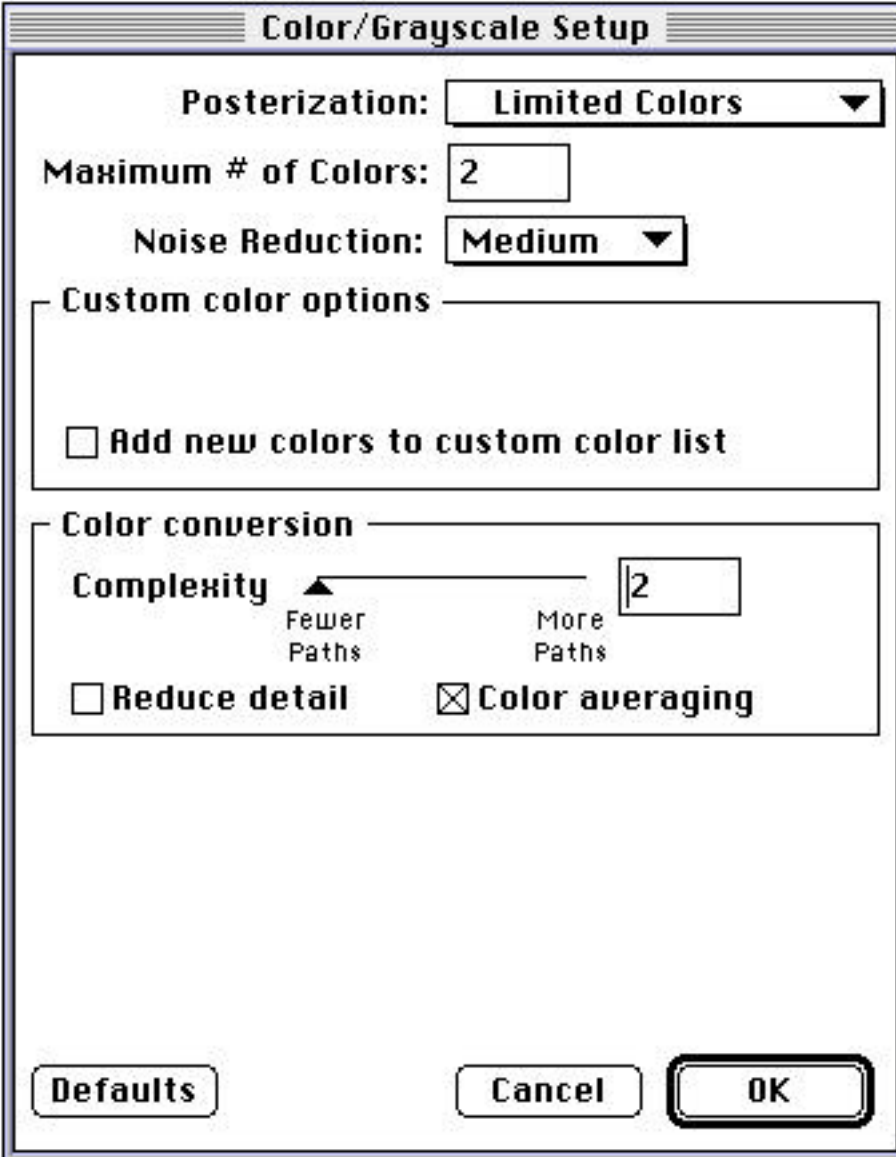
The rest of the options under Black & White Conversion are the same as they have always been.

The only remaining issue is the Preview button. Given all of the new color options, this button no longer accurately previews what the final, traced image should look like. I think we have two options:

1. Reconfigure the preview for color posterization so that it takes into account the settings for Complexity, Maximum # of Colors, and Posterization. I expect that this would be more work than it is worth, and would probably take almost as long to generate as it actually takes to trace the image.
2. Disable the Preview button unless "Black & white only" posterization is selected.

Assuming that we go with option 2, following is a picture of what the dialog will look like when each of the Posterization options are selected. In order to make this more

understandable when faxed, I've erased disabled controls entirely rather than just graying them out.



The image shows a 'Color/Grayscale Setup' dialog box. It has a title bar with the text 'Color/Grayscale Setup'. Inside the dialog, there are several sections. The first section is 'Posterization:' with a dropdown menu set to 'Limited Colors'. Below this is 'Maximum # of Colors:' with a text box containing the number '2'. The next section is 'Noise Reduction:' with a dropdown menu set to 'Medium'. Below that is a section titled 'Custom color options' which contains a single checkbox labeled 'Add new colors to custom color list'. The next section is 'Color conversion' which contains a 'Complexity' slider. The slider has a triangle marker pointing towards the left, with 'Fewer Paths' on the left and 'More Paths' on the right. To the right of the slider is a text box containing the number '2'. Below the slider are two checkboxes: 'Reduce detail' (unchecked) and 'Color averaging' (checked). At the bottom of the dialog are three buttons: 'Defaults', 'Cancel', and 'OK'.

Color/Grayscale Setup

Posterization: Limited Colors ▼

Maximum # of Colors: 2

Noise Reduction: Medium ▼

Custom color options

☐ Add new colors to custom color list

Color conversion

Complexity ▲ 2

Fewer Paths More Paths

☐ Reduce detail ☒ Color averaging

Defaults Cancel OK

Color/Grayscale Setup

Posterization: **Unlimited Colors** ▼

Noise Reduction: **Medium** ▼

Color conversion

Complexity ▲ ▼
Fewer Paths More Paths

☐ Reduce detail ☒ Color averaging

Defaults **Cancel** **OK**

Color/Grayscale Setup

Posterization: **Use Custom Colors** ▼

Maximum # of Colors: 2


Noise Reduction: **Medium** ▼

Custom color options

☐ Tagged colors only

☐ Generate tints

Color conversion

Complexity  2

☐ Reduce detail ☒ Color averaging

Defaults **Cancel** **OK**

Note in the above dialog that the Maximum # of colors field is greyed out, but still displays pertinent information.

The rest of the dialog remains as it was in Pegasus.

Settings...

Changes in the Conversion Setup and Color/Grayscale Setup dialogs require that changes be made to the Settings dialog as well:

Under the Conversion Setup/Accuracy heading there is one new item:

Interactive

This item is followed by a “Yes” when Interactive Thinning is enabled.

The format of the items under the Color/Grayscale Setup heading have changed substantially, to reflect the changes in the Color/Grayscale Setup dialog. The first item under this heading will reflect one of four options:

Black & White only

x Colors (where x is the number in the # of colors field)

Unlimited Colors

Use Custom Colors

The rest of the items directly reflect the status and/or value of the corresponding controls in the Color/Grayscale Setup dialog. If Black & White only is the Posterization option chosen, then the Color Conversion listing in the Settings dialog is replaced with B&W Conversion, as follows:

Also note that one item has been removed from the Color/Grayscale Setup section. “Convert Selection Edge” no longer appears, because a separate command for this function has been added to the File menu.

Tool Palette



Several new tools have been added to Centaur's tool palette. These new tools are designed for editing converted illustrations. In addition, some of the other tools have been rearranged for the sake of greater consistency with other Adobe applications.

Pegasus featured separate "+" and "-" magnifying tools. In Centaur these are condensed into a single tool, consistent with the functionality of Illustrator and Photoshop. The default mode of operation for this tool is to zoom in. Holding down the [option] key changes the tool to zoom out.

The new editing tools in Centaur are designed so that all editing operations can be performed with a single tool in combination with shortcut keys, but separate tools are provided for users who don't know the shortcuts. The new tools are as follows:

Adjust Curve

Default Behavior: Click and drag on a point to move it. Click and drag on a path to adjust it as a simple curve. Automatically converts an existing straight line segment into a curve when you click on the path rather than a point.

[Shift]: Constrains the segment to be a circular arc, adding additional points as necessary.

[Control]: When pointer is over a point, becomes the Delete Point tool. When cursor is over a path segment, becomes the Add Point tool. (This is just like the Pen tool in Illustrator works.)

[Option]: Switches to the Adjust Line tool.

Adjust Line

Default Behavior: Click and drag on a point to move it. Click on a path segment to convert it into a straight line. Also allows you to drag the segment in any direction, pulling its endpoints with it.

[Shift]: Constrains the line segment to be horizontal, vertical, or at an angle of 45 degrees. Moves the endpoints as necessary to make this so.

[Control]: When pointer is over a point, becomes the Delete Point tool. When cursor is over a path segment, becomes the Add Point tool. (This is just like the Pen tool in Illustrator works.)

[Option]: Switches to the Adjust Curve tool.

Add Point

Default Behavior: Adds a new point on the path segment where clicked.

[Option]: Switches to the Delete Point tool.

Delete Point

Default Behavior: Deletes the point underneath the pointer when clicked. Clicking and dragging creates a bounding box, and deletes all points within the bounding box, but only on the currently selected path.

[Option]: Switches to the Add Point tool.

Each of these path editing tools, by default, will be applied to the closest selected path to the location of the mouse click. If no selected path is within a given tolerance of that location, then the closest path within that tolerance is selected automatically, and the editing operation is applied to it. (The exception to this rule is the Delete Point tool when used in click-drag mode. This tool will only apply to a previously selected path.)

Summary of Tools:

| <u>Tool:</u> | <u>Click On:</u> | <u>Drag?:</u> | <u>Shift</u> |
|-----------------------|-------------------------|----------------------|---------------------|
| Add Point | Path | No | |
| Delete Point | Point | No | |
| Move Point | Point | Yes | |
| Make Line | Path | No | Horiz/Perp. |
| Make Horiz/Perp. Line | Path | No | Reg. |
| Make Circ. Arc | Path | Yes | Reg. |
| Make Arc | Path | Yes | Circ. |