Chapter 5 Tools and Menus

Chapter Overview

This chapter reviews each of the menus and commands that appear in NCSA Image's menu bar, and discusses the various tools used in the program. A brief description of each command or tool is accompanied by a reference to the chapter and section that discusses it in detail.

The NCSA Image commands appear in eight menus, seven of which are always present in the NCSA Image menu bar: Apple, File, Edit, Tools, Plot, XY, and Palette, as shown in Figure 5.1. The eighth is the Animation menu which appears in the menu bar only while you are working with an animation sequence.

Figure 5.1 NCSA Image Menu Bar

The commands in these menus are dimmed when not applicable; NCSA Image cannot execute a dimmed command.

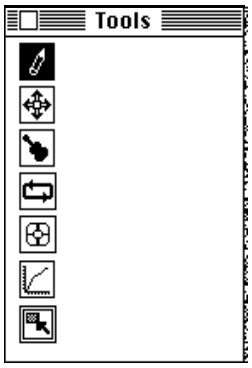
The NCSA Image menus function as any other Macintosh menu. If you do not know how to issue commands using menus, refer to your Macintosh user's guide.

The NCSA Image Tools

The seven tools that you use in NCSA Image appear in the tool chest, which you may access by choosing Show Tool Chest from the menu or by pressing ⌘-T.

The tool chest is pictured in Figure 5.2.

Figure 5.2 Tool Chest



Each of the tools that appear in the tool chest allows you to perform a particular imaging or palette manipulation. To select one of these tools, simply click on its icon. The uses of each tool are briefly

summarized in the following sections. For more information regarding the use and application of the first four of these tools, refer to the section "Creating the Perfect Color Environment" in Chapter 3. The last three of these tools are discussed in Chapter 4 in the section entitled "Features for Advanced Analysis."

The Pencil Tool

Changes color entries in the palette to the base color, so that all the values represented by that color entry are changed to the base color.

The Drag Tool

Selects a color from the palette and assigns that color to another entry, so that all the values represented by that entry are changed to the color you selected.

The Fiddle Tool

Compresses or expands the spectrum within the color palette. For example, you can select regions of interest to be represented by the greatest number of colors.

The Rotation Tool

Rotates the palette left or right, continuously or one entry at a time, at varying speeds.

The Graphing Tool

Selects a line of data from an image, so that the data may be added to the XY graph and plotted in an XY window.

The Scope Tool

Displays actual floating-point numbers in an image. If no floating-point numbers are available, the pixel values are displayed.

The Selection Tool

Selects a region of interest in an image window on which to perform operations such as generating a histogram.

The NCSA Image Menus

The Apple Menu

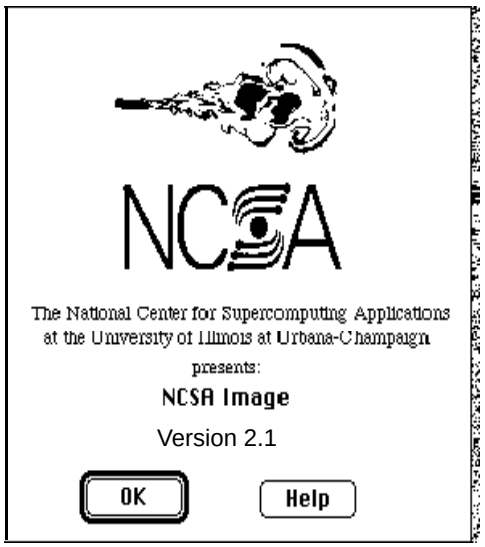
The Apple menu, shown in Figure 5.3, appears in all Macintosh applications. It permits access to your Macintosh desk accessories, such as the Chooser, Calculator, and Control Panel, and tells you which applications are currently open.

Figure 5.3 Apple Menu

In addition, the Apple menu contains the About NCSA Image command. When you choose About NCSA Image from the Apple menu, the About box appears, shown in Figure 5.4. To remove the box, click OK or press RETURN. To access NCSA Image's online help, click Help.

For more information regarding desk accessories, refer to your Macintosh user's guide.

Figure 5.4 About NCSA Image



The File Menu

The File menu, shown in Figure 5.5, contains the commands that open an image file or scientific dataset, animate a series of images, close image windows, save images and associated color tables, specify page parameters, print plots, and exit the program.

Figure 5.5 File Menu

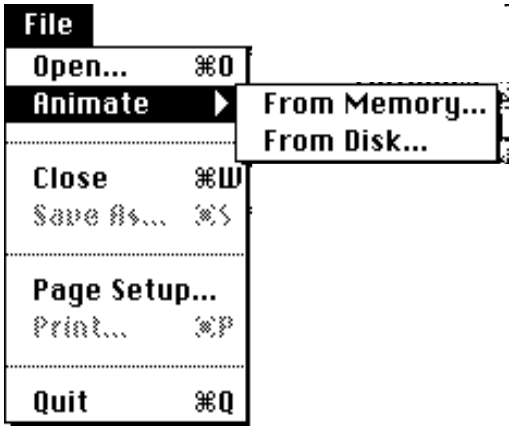
Open...

Reads a dataset from a raw raster or HDF file and displays it as a color raster image in an image window. (See "Getting Started with NCSA Image" in Chapter 1.)

Animate

Initiates an animation sequence from memory or disk. The animation submenu is shown in Figure 5.6. (See "Animating a Sequence of Images" in Chapter 4.)

Figure 5.6 Animate Submenu



Close

Removes the active image window and purges any unsaved associated dataset just as clicking in the close box does. (See "Working with Image and Palette Windows" in Chapter 3.)

Save As...

Saves the raw raster image in the active image window, the dimensions of the dataset, and the associated color table in an HDF file. (See "Saving Your Work" in Chapter 1.)

Page Setup...

Prompts you to specify the page size, orientation, pagination, and other characteristics of the document to be printed. (See "Printing an Image" in Chapter 1.)

Print...

Prints a copy of the active image, when the image is a black-and-white plot or XY graph. (See "Printing an Image" in Chapter 1.)

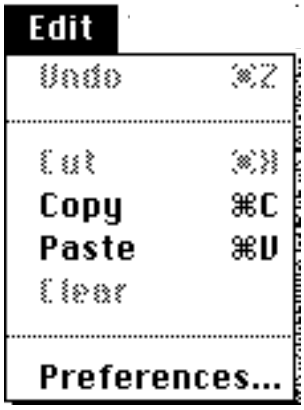
Quit

Exits the program without prompting you to save your work. Any work that has not been previously saved is purged when you issue this command. (See "Exiting NCSA Image" in Chapter 1.)

The Edit Menu

The Edit menu, shown in Figure 5.7, contains the following options: Undo, Cut, Copy, Paste, Clear, and Preferences.

Figure 5.7 Edit Menu



Undo

Dimmed. Not supported in current version.

Cut
Dimmed. Not supported in current version.

Copy
Copies any image, selection of an image, or palette and places it on the Clipboard. (See "Copying a Palette" in Chapter 3 and "Copying and Pasting Images" in Chapter 4.)

Paste
Pastes the contents of the Clipboard, whether an image or a palette, into NCSA Image. (See "Creating the Perfect Color Environment" in Chapter 3 and "Copying and Pasting Images" in Chapter 4.)

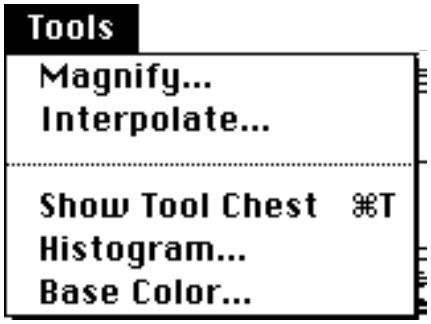
Clear
Dimmed. Not supported in current version.

Preferences...
Allows you to personalize the NCSA Image program to save files, draw plots, and read, scale and transpose images to your specifications. (See "Preferences" in Chapter 2.)

The Tools Menu

The Tools menu, shown in Figure 5.8, contains the Magnify, Interpolate, Show Tool Chest/Hide Tool Chest/Expose Tool Chest, Histogram, and Base Color commands.

Figure 5.8 Tools Menu



Magnify...
Prompts you to indicate the degree of magnification or reduction and magnifies or reduces the image in the active image window according to your specifications. (See "Basic Imaging Options" in Chapter 4.)

Interpolate...

Prompts you to indicate the degree of magnification or reduction and magnifies or reduces the image in the active window by interpolation, the effects of which cannot be undone. (See "Basic Imaging Options" in Chapter 4.)

Show Tool Chest

Brings up the tool chest, which displays the various tools you can use to manipulate the palette, make selections, and choose datasets to be graphed in an XY plot. This menu item becomes Hide Tool Chest when the tool chest is visible, and Expose Tool Chest when the tool chest is obstructed by another window. Hide Tool Chest closes the tool chest window. Expose Tool Chest makes the tool chest the frontmost window. (See "Creating the Perfect Color Environment" in Chapter 3.)

Histogram...

Plots a frequency distribution graph, or histogram, of the data values, and allows you to adjust the color table to enhance the representation of the image data. (See "Features for Advanced Analysis" in Chapter 4.)

Base Color...

Brings up a Color Wheel dialog box which you may use to specify a base color other than white, the default base color. (See "Creating the Perfect Color Environment" in Chapter 3.)

The Plot Menu

The Plot menu is depicted in Figure 5.9. It contains commands that allow you to generate color raster images, contour plots, 3D plots, shaded data plots, and ordered dither plots from your datasets.

Figure 5.9 Plot Menu

Raster

Generates a color raster image from the dataset associated with the active image window using the current palette, and displays the image in the image window. (See "Basic Imaging Options" in Chapter 4.)

Contour

Prompts you to specify levels of distinction, generates a contour plot from the dataset associated with the active image window according to your specifications, and displays the plot in the image window. (See "Basic Imaging Options" in Chapter 4.)

3D

Draws a 3D plot of the dataset associated with the active image window and displays the plot in the image window. (See "Basic Imaging Options" in Chapter 4.)

Shade

Constructs a shaded data plot to represent the dataset associated with the active image window, and displays the plot in the image window. (See "Basic Imaging Options" in Chapter 4.)

Dither

Constructs an ordered dither plot to represent the dataset associated with the active image window, and displays the plot in the image window. (See "Basic Imaging Options" in Chapter 4.)

The XY Menu

The XY menu, shown in Figure 5.10, contains the following commands: Add Dataset, Show XY Window/Hide XY Window/Expose XY Window, Options, Reset, and Legend.

Figure 5.10 XY Menu

Add Dataset

Generates an XY graph from a linear selection of data in the active image window and displays the graph in an XY window that appears behind the active image window. (See "Features for Advanced Analysis" in Chapter 4.)

Show XY Window

Brings the XY window associated with the active image window to the front. This menu item becomes Hide XY Window when the XY window is frontmost, and Expose XY Window when the XY window is obstructed by another window. Hide XY Window closes the window. Expose XY Window makes the XY window the frontmost window. (See "Features for Advanced Analysis" in Chapter 4.)

Options...

Allows you to specify option parameters for generating an XY graph—to specify the size of the boundary rectangle, title the x and y axes, and select a line mode. (See "Features for Advanced Analysis" in Chapter 4.)

Reset

Erases the XY graph so that you may plot different datasets in the XY window. (See "Features for Advanced Analysis" in Chapter 4.)

Legend...

Prompts you to name each line of data to be displayed in the XY window. (See "Features for Advanced Analysis" in Chapter 4.)

The Palette Menu

The commands in the Palette menu, shown in Figure 5.11, are Hide Palette/Show Palette/Expose Palette, Restore Palette, Color Tables, Load Palette, and Save Palette.

Figure 5.11 Palette Menu

Hide Palette/Show Palette/Expose Palette

Removes the palette window from view and changes the menu command to Show Palette. Show Palette shows the current palette in the palette window. This menu item becomes Expose palette when the palette window is obstructed by another window. Expose Palette makes the palette window the frontmost window. (See "Working with Image and Palette Windows" in Chapter 3.)

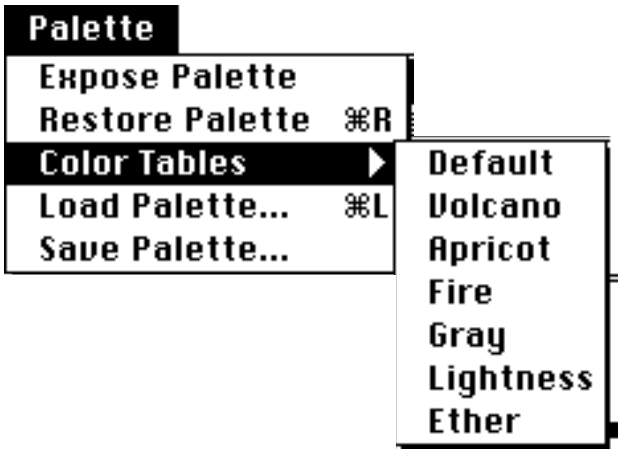
Restore Palette

Reverts the palette to its original state if modifications have been made to the palette. (See "Saving and Restoring Modified Palettes" in Chapter 3.)

Color Tables

Lists the color tables that have been built into NCSA Image in a submenu, shown in Figure 5.12. When you select one of these tables, the color table associated with the current image is initialized according to the selected color table. (See "Creating the Perfect Color Environment" in Chapter 3.)

Figure 5.12 Color Tables Submenu



Load Palette...

Reads a palette from a raw palette or HDF file and initializes the color table associated with the current image according to the palette information contained in the file. (See "Creating the Perfect Color Environment" in Chapter 3.)

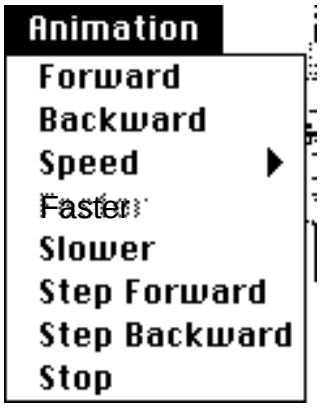
Save Palette...

Saves the current color table to a raw palette file. (See "Saving and Restoring Modified Palettes" in Chapter 3.)

The Animation Menu

After you load an animation sequence, the Animation menu shown in Figure 5.13 appears in the menu bar. The commands in this menu control the animation.

Figure 5.13 Animation Menu



Forward

Initiates a continuous animation that proceeds forward through the image sequence. (See "Animating a Sequence of Images" in Chapter 4.)

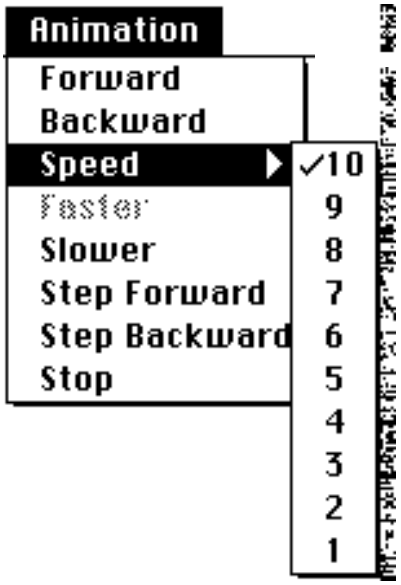
Backward

Initiates a continuous animation that proceeds backward through the image sequence. (See "Animating a Sequence of Images" in Chapter 4.)

Speed

Lists the various speeds at which you may run an animation in a submenu, shown in Figure 5.14. The speeds are set on a scale of 1 through 10, where 10 is the fastest. (See "Animating a Sequence of Images" in Chapter 4.)

Figure 5.14 Speed Submenu



Faster

Increases the speed of the animation by one degree. (See "Animating a Sequence of Images" in Chapter 4.)

Slower

Decreases the speed of the animation by one degree. (See "Animating a Sequence of Images" in Chapter 4.)

Step Forward

Advances to the next frame in the animation sequence. (See "Animating a Sequence of Images" in Chapter 4.)

Step Backward

Advances to the preceding frame in the animation sequence. (See "Animating a Sequence of Images" in Chapter 4.)

Stop

Stops the animation sequence. (See "Animating a Sequence of Images" in Chapter 4.)