Viewbox™ Reference Manual

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Configuration Requirements Section

Viewbox™ **requires an Apple Macintosh computer that supports 32-bit color (it does not have to actually be a color computer), has at least a 68020 microprocessor, and has available a floating-point unit. A minimum of four megabytes of RAM is recommended, though not required.** Viewbox™ **will check your computer system when you start the program to see if the proper configuration exists and issue an alert if it is not adequate.**


Palette Options Section

The command palette is located along the left edge of each image window. It is a way to change how the program interprets mouse commands.   Each box in the palette represents a different way in which the program will interact with a mouse command in that image window. Selecting a box activates that particular mode. Each mode is described below. The currently active mode is highlighted.

Pointer
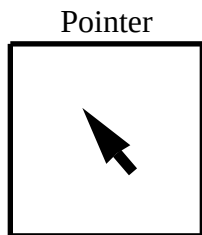
This mode is for selecting, (highlighting), deselecting, or dragging images or ROIs.   When this box is selected, the cursor changes to an arrow. This is the default mode.   This mode supports the shift-select capability of selecting multiple images. Click in the black areas of the image and it will be selected.
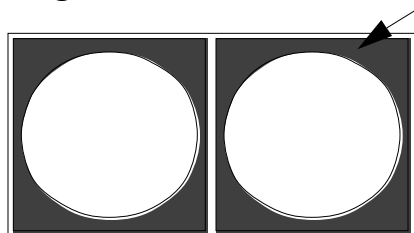
An image may also be selected by circling it and multiple images may be selected by encircling all of them. To circle images click and drag just outside the black areas. You must circle the whole image to select it.
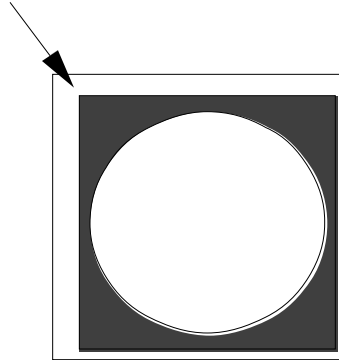
Pointer continued   **These selection features can also be combined to select images. Note also that both ROIs and images can be selected simultaneously.**

ROIs (all types) may be selected in all the ways described for images. You can click on an ROI to select it, encircle a group of ROIs to select all of them, or you can use the shift-click to select or deselect ROIs. When selecting nested or overlapping ROIs, the ROI with the largest percentage of the area overlapped will be selected. In the example to the left, the smaller ROI will be selected.
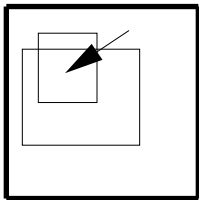
The pointer mode also allows images and ROIs to be dragged or moved within the window. Images may be moved to any empty image location; ROIs can be moved to any new position within their image. To move an image or ROI, click on the item with the mouse the same as you would select it (it will become highlighted), but do not let go of the mouse button. You may now move the mouse and the item will move around under your cursor. You will notice certain restraints when you move into areas where the item may not be allowed. When dragging images, you do not have to line them up perfectly in their new position--the images will automatically be properly
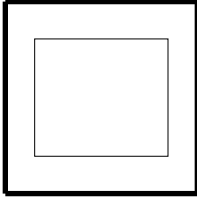
positioned within the image space that the mouse is in when you let up on the mouse button. You can also move both images or ROIs in groups.
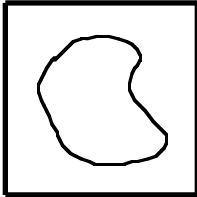

Rectangular ROI Creation

This mode is for creating rectangular ROIs on images. When this box is selected, the cursor changes to a cross-hair. Rectangular ROIs may then be drawn on images. The cross-hair center is a corner of the ROI. When ROIs are created, the statistics for that ROI will appear in the ROI Statistics Window. If you **Undo** an ROI its associated statistics will be removed from the ROI Statistics Window.

• See also: **Irregular ROI Creation, ROI Statistics Window, Open ROIs..., Paste, Save ROIs...**

• *Special note*: Pixels under the ROI lines are considered a part of the ROI.

Irregular ROI Creation

This mode is for creating irregular ROIs on images. When this box is selected, the cursor changes to a cross-hair. Irregular ROIs may then be drawn on images. The drawing of irregular ROIs is similar to drawing in MacPaint™ using the pencil. To draw an irregular ROI, click and drag from where you want the irregular shape to begin. Let up on the mouse button when you reach the end of the shape. The program will automatically connect the beginning and end of the irregular shape. So don't worry about them lining up perfectly. When ROIs are created, the statistics for that ROI will appear in the ROI Statistics Window.   If you **Undo** an ROI its associated statistics will be removed from the ROI Statistics Window.

ROI A is a valid ROI.

ROI A

Viewbox™ will convert ROI B into the shape of ROI C. Don't let points touch for unusual shaped ROIs.

ROI B

• See also: **Rectangular ROI Creation**, **ROI Statistics Window, Open ROIs..., Paste, Save ROIs...**

• *Special notes*:
Pixels under the ROI lines are considered a part of the ROI.

ROI C

A single Click of the mouse will create a one-pixel sized ROI.

Windows Section

Color Scales Window

The Color Scales Window **is displayed each time** Viewbox™ **is executed. The current color scale is always displayed in the Color Scales window and can be examined to determine the full range of colors and color sets provided by the current color scale.**

The **Color Scales Window** displays a large representation of the set of colors available in the current Viewbox™ color scale. The color bar displayed there is similar to that displayed beside each image except that for color scales with multiple image color types, all color scales are simultaneously displayed. The **Color Scales Window** can be brought to the front for viewing by clicking on it or by selecting **Color Scales** from the Window menu. When the **Color Scales Window** is brought to the front it can also be printed using the **Print...** or **Print One** commands**.** In addition, the user can **Copy** the color bar directly from the **Color Scales Window** and **Paste** it into other applications.

For more information on	See also
Color scales	•**Change Color Scales**
Color types	•**Change Image Colors**
Printing	• **Page Setup...** • **Print ...** • **Print One**
Copying	•**Copy**

ROI Statistics Window

The ROI Statistics Window **is displayed each time** Viewbox™ **is executed. When ROIs are created on images or opened and placed on images using** Open ROIs... **the** ROI Statistics Window **displays statistical information in the** ROI Statistics Window**.**

The **ROI Statistics Window** displays the following information about ROIs: the ROI number, the sum, the area, the min, the max, the mean, and the standard deviation. The **ROI Statistics Window** can be brought to the front for viewing by clicking on it or by selecting **ROI Statistics** from the Window menu. When the **ROI Statistics Window** is brought to the front it can also be printed using the **Print...** or **Print One** commands**.** In addition, the user can **Copy** data directly from the **ROI Statistics Window** and **Paste** it into other applications.

For more information on	See also
Printing	• **Page Setup...** • **Print ...** • **Print One**
ROIs	•**Palette Options - Pointer** **Rectangular ROI Creation, Irregular ROI Creation** • **Save ROIs...** • **Open ROIs...**
Windows	• **Close**
Copying ROI statistics	• **Copy**

Menu Commands Section

About Viewbox™...

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About Viewbox™... is in the Apple menu. Selecting this command will display the current version number of the product, the authors, and other interesting information.

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Change Color Scales

Change Color Scales **is in the Image menu.** Change Color Scales **will change the colors available for displaying the images in the image window, as well as the full color scale displayed in the Color Scales window.**

Change Color Scales uses a popup menu to show a second menu list of possible color scales for Viewbox™ to use to display images. To use **Change Color Scales**, move the pointer over the **Change Color Scales** menu and leave it there until the second menu appears. Without releasing the mouse button, slide the pointer into the second menu area. You may now select any of the enabled color scales listed in the same manner as a normal menu item.

After a new color scale has been selected all the images will be redrawn using the new set of colors. Changing the color scale also changes the set of color types available for the images. If an image color type is no longer available in the new color scale, any images using the color type no longer available will be redrawn using the closest matching color type in the new color scale. However, the previous type is still remembered and when the original color scale is reselected the image will be redrawn as before. As an example, an image drawn in Gray when the Color/Gray color scale is selected will be drawn in color when the Full Color scale is selected. However, if the Color/Gray color scale is subsequently reselected, the image will then be redrawn in Gray as before without having to be specifically changed to Gray again.

• *Special Notes:*
  Change Color Scales is always enabled. The current color scale is always displayed in the Color Scales window and can be examined to determine the full range of colors and color sets provided by the current color scale.

For more information on	See also
Color Scales window	•**Color Scales Window**

Color types	•Change Image Colors

Change Image Colors

Change Image Colors **is in the Image menu.** Change Image Colors **will change the colors used for displaying the selected images in the image window.**

Change Image Colors changes the colors of individual images within the image window. It only changes the images selected at the time it is executed. Different images in the image window can have different color types (sets of colors), depending on those available in the current Viewbox™ color scale. For example, the Full Color color scale only allows Color images, but the Color/Gray color scale allows images to be either Color or Gray. The full range of color sets available can be seen in the Color Scales window.

Change Image Colors uses a popup menu to show a second menu list of possible color types for Viewbox™ to use to display images. To use **Change Image Colors**, select the set of images to change their color type. Next, move the pointer over the **Change Image Colors** menu and leave it there until the second menu appears. Without releasing the mouse button, slide the pointer into the second menu area. You may now select any of the color types listed there in the same manner as a normal menu item. After a new color type has been chosen, all the selected images will be redrawn using the new color set.

The set of available color types depends on the current Viewbox™ color scale. If an image's color type is not available in a new color scale after the color scale has been changed, the image is drawn using the closest matching color type in the new color scale. However, the previous type is still remembered and when the original color scale is reselected the image will be redrawn as before. As an example, an image drawn in Gray when the Color/Gray color scale is selected will be drawn in color when the Full Color scale is selected. However, if the Color/Gray color scale is subsequently reselected, the image will then be redrawn in Gray as before without having to be specifically changed to Gray again.

- *Special Notes:*
  Change Image Colors is enabled when *only images* are selected. If you have ROIs selected, **Change Image Colors** will not enabled.

The current color scale is always displayed in the Color Scales window and can be examined to determine the full range of colors and color sets provided by the current color scale.

For more information on	See also
Color scales	•**Color Scales Window** •**Change Color Scales**

Clear

Clear **is in the Edit menu. Clear allows you to remove images or ROIs from the display window. To use** Clear**, highlight the items you would like removed, select** Clear **from the Edit menu or press the Delete key, and the highlighted items will be removed from the display.**

- *Special Notes:*
  ROIs on highlighted images will be automatically removed when the image is **Clear**ed. You do not need to highlight them separately.

  Clear does not change the contents of the Clipboard.

For more information on	See also
Selection	•**Palette Options - Pointer**
Clipboard	• Macintosh User's Manual • **Copy** • **Cut** • **Paste** • **Show Clipboard**
ROIs	•**Palette Options - Pointer** **Rectangular ROI Creation, Irregular ROI Creation** • **ROI Statistics Window** • **Save ROIs...** • **Open ROIs...**

Close

Close **is in the File menu. Use** Close **when you want to stop working with an image window. This command is equivalent to clicking the close box on a window.**

To use **Close**, be sure the image window you want to close is active (lines are in the border across the top of the window) and select **Close**. If you have made any changes to the image window, **Viewbox**™ will ask if you wish to **Save** the document. If you select Yes, a file will be saved. This file should be thrown away in this version of **Viewbox**™ because it contains no data. In a future version the **Save** command will be implemented and data will be saved to the file. When you **Close,** the ROI Statistics will be removed from the **ROI Statistics Window**.

For more information on	See also
ROIs	•**Palette Options - Pointer Rectangular ROI Creation, Irregular ROI Creation** • **ROI Statistics Window** • **Save ROIs...** • **Open ROIs...**

Color Scales

Color Scales **is in the Window menu.** Color Scales **displays the Color Scales Window. This command is useful to access the Color Scales Window when many windows are open.**

For more information on	See also
Color Scales Window	• **Color Scales Window**

Contrast Enhance...

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Contrast Enhance... is in the Image menu. The **Contrast Enhance...** command allows you to change the range of data in one or more selected images that are displayed by the color scale.

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To use **Contrast Enhance...,** you must select one or more images (images only). This will activate **Contrast Enhance...** in the Image Menu. You will then see a dialog box which allows you to enter lower and upper percentages, lower and upper absolute data values, or window and level absolute data values. Alternatively, you can interactively change any of the above values by clicking (or clicking and holding) the arrows beside the entry boxes. These numbers describe the desired relation between the data values in the selected images and the colors in the color scale. As you change the numbers the images selected for **Contrast Enhance...** will change on the screen. All values are calculated from the entire range of data values in all the selected images. (The scale factor from the reconstruction has already been accounted for in these data values in specific imported file types.)

• *Special Notes:*
  If images are selected with identical percentage contrast enhancements, these lower and upper ranges are displayed in the dialog box as defaults. If images are selected that have differing percentage values, then the lower and upper values are reset to 0 and 100%.

In addition, the Contrast/Enhance dialog box is movable on the screen so that it can be positioned where it is most useful. Viewbox tries to initially position the dialog out of the way of the images in the viewbox window.

For more information on	See also
Image selection	•**Palette Options - Pointer**
ROIs	•**Palette Options - Pointer Rectangular ROI Creation, Irregular ROI Creation • ROI Statistics Window • Save ROIs... •Open ROIs...**

Copy

Copy **is in the Edit menu.   Copy allows you to make a duplicate of the selected information. You may** Copy **images and ROIs in display windows, statistics text from the** ROI Statistics Window**, and the color bar section of the Color Scale Window. To use** Copy**, highlight the information you want to copy, select** Copy **from the Edit menu, and the highlighted information will be duplicated on the Clipboard.**

You may copy multiple images or ROIs to the Clipboard--any items that are highlighted will be placed on the Clipboard. When multiple images are highlighted they will be placed on the Clipboard nestled together, without empty image spaces between them. Therefore it is not necessary to only select contiguous images for **Copy**ing. Any ROIs on the images will be automatically placed on the Clipboard, on their respective images, regardless of whether the ROIs were highlighted or not. You may also copy ROIs without images; all the highlighted ROIs to be copied will be collected as if they were on a single image. If you execute **Show Clipboard** you will see the ROI(s) on the Clipboard in a blank image space in the same image-relative positions they would be with respect to the image(s) they were previously on. You may also simultaneously **Copy** highlighted images and ROIs that are not on those highlighted images. These ROIs will be treated similarly to ROIs copied alone--they will appear, collected, in a blank image position at the end of the selected images.

• *Special Notes:*
  When items are **Copied** to the Clipboard duplicates of the data are made and added to the computer memory. The previous Clipboard contents are also kept in memory so that if you choose to **Undo** the **Copy** the previous Clipboard can be restored. This can cause **Viewbox™** to run out of memory in certain situations, and an alert will be displayed informing you of the condition; you may also not be able to complete your operation. For example, if you had six images in a display window, selected them all, executed **Copy**, and then executed

Copy again you would have eighteen images stored in memory. In these situations you can clear the Clipboard by **Copy**ing something small, such as an ROI, or if the problem regularly occurs you can increase the memory available to **Viewbox™**.

When **Copy**ing images for use in other programs remember that only the picture of the image is being placed on the Clipboard. You should be careful when you **Copy** images into other image processing applications for data analysis that you are using the Clipboard information properly.

For more information on	See also
Selection	•**Palette Options - Pointer**
Clipboard	• Macintosh User's Manual • **Cut** • **Paste** • **Show Clipboard**
ROIs	•**Palette Options - Pointer** **Rectangular ROI Creation, Irregular ROI Creation** • **ROI Statistics Window** • **Save ROIs...** • **Open ROIs...**
Increasing memory size	• Macintosh User's Manual Get Info

Cut

Cut is in the Edit menu.   Cut duplicates the selected information on the Clipboard and then deletes it. The Cut command is identical to a Copy command followed by a Clear command. You may only Cut images and ROIs. To use Cut, highlight the information you want to cut, select Cut from the Edit menu, and the highlighted information will be duplicated on the Clipboard and then deleted.

- *Special Notes:*
  See the **Copy** and **Clear** command descriptions for more details on the behavior of **Cut**.

For more information on	See also
Selection	•**Palette Options - Pointer**
Clipboard	• Macintosh User's Manual • **Clear** • **Copy** • **Paste** • **Show Clipboard**
ROIs	•**Palette Options - Pointer** **Rectangular ROI Creation,** **Irregular ROI Creation** • **ROI Statistics Window** • **Save ROIs...** • **Open ROIs...**

Histogram...

Histogram... **is in the Analysis menu.** Histogram… **will create a text file of histogrammed image data for a selected ROI from the image that the ROI is in. This file can be used by Microsoft Excel™ or other programs. Rather than simply a list of numbers representing histogram bin amounts or a simple bar chart,** Histogram… **creates a much more accurate representation of the data situation that can be used in detailed quantitative analysis.**

To use **Histogram…**, you must first create an or use an existing ROI on an image in an image window. Then you must select the ROI you want **Histogram...** to use; this may be done by clicking on the ROI or circling the desired ROI with the arrow cursor in the Pointer mode (see **Palette Options**). Next, select **Histogram...** from the Analysis Menu. A dialog will appear.

The dialog requests the number of histogram bins for the histogrammed data output file. **Histogram...** will then divide up the data range of the image data within the ROI into the number of bins you select. Clicking on the OK button will then cause **Histogram...** to compute the histogram data and ask you for a file name to save the data in. However, most of the time the data range of the image will not divide up evenly into the number of histogram bins you select in the **Histogram...** dialog. This helps explain the complicated data file that **Histogram...** produces.

Generally, the data contained in an image has been previously rounded to the value represented by an individual pixel. In other words, the image data no longer represent a continuous spectrum. Therefore, it is not possible to simply divide the data range up into exactly identical bin sizes: more data points would fall into one bin versus another simply because that bin happened to straddle more rounded data points, rather than because more data happened to originally have fallen within that histogram bin data range. To get around this dilemma, **Histogram...** produces a file containing the histogram bin number, start, end, width, midpoint, and image data count. Each bin's data range, shown by its start, end, midpoint, and width, is shown separately, along with the number of data points that fell within the bin range. It is then possible to account for the extra counts among varying size histogram bins.

• *Special Notes:*
Histogram… is enabled when *only one ROI* is selected. If you have images or multiple ROIs selected, **Histogram...** will not enable.

For more information on	See also
Selection	•**Palette Options -** **Pointer**
ROIs	•**Palette Options -** **Pointer** **Rectangular ROI Creation,** **Irregular ROI Creation** • **ROI Statistics Window** • **Save ROIs...** • **Open ROIs...**

Image Section...

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Image Section... **is in the Analysis menu.** Image Section… **will create a binary file of image data within a selected ROI from a series of images. This file can be used as input for other programs that do not want to deal with the full image data. Note that not all of the images in the series you want to create a file for need to be imported.** Viewbox™ **requires that only one image from a series be imported. It will take care of the rest of the images you select.**

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To use **Image Section...** you must create an ROI or use an existing ROI on an image in an image window. Then you must select the ROI you want **Image Section...** to use; this may be done by clicking on the ROI or circling the desired ROI with the arrow cursor in the Pointer mode (see **Palette Options**). Next, select **Image Section...** from the Analysis Menu. A dialog will appear.

The dialog is very similar to that used for selecting a file except that in this first dialog you are to select a folder to expand. Watch the button in the lower right corner of the dialog to see what folder you have currently chosen to expand. Once you have chosen a folder, click on the Expand… button and a second dialog will appear with a list of files in the expanded folder. You may now select multiple files for inclusion in your image section file.

The popup items below the file lists allow you to select the type of files to display in the file lists. In the second file list, these are the images that can be included in your image section file. When UW PET images are chosen (the default), the file names in the second dialog file list will appear in sorted chronological order, rather than in alphabetical order.

Select the images that you would like to include in the image section file from the files in the second file list. To select contiguous blocks of images, first click the mouse at the start of the block, hold down the Shift or Command key, and drag to the last image you want selected. Contiguous blocks can also be selected by clicking on the first image and then holding the Shift key down and clicking on the last image, without dragging. To select or deselect images that are not contiguous hold the Command key down and click on them.

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When you have selected the files you wish to include, click on the OK button and your image section file will be created. If you select Cancel at this point, you will be returned to the first, folder expansion, dialog where you can choose a different folder to expand.

When the image section file has finished being created you will be asked to specify a file name. The image data will be saved in this file.

• *Special Notes:*
   Image Section... is enabled when *only one ROI* is selected. If you have images or multiple ROIs selected, **Image Section...** will not enable.

For more information on	See also
Selection	•**Palette Options - Pointer**
ROIs	•**Palette Options - Pointer Rectangular ROI Creation, Irregular ROI Creation** • **ROI Statistics Window** • **Save ROIs...** • **Open ROIs...**

Import…

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Import... is in the Image menu. Use Import... **to move a copy of an image on disk into the** Viewbox™ **program for display and analysis. The image will be read in and displayed in the active image window (the one closest to you).** Import... **automatically selects the next available location in the image window.**

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When **Import...** is selected a dialog box will appear with a list of file types and a list of files of the currently selected type that you may import. Changing the file type will change the list of importable files. Note that all 32 characters of the file name are visible. This dialog box will allow you to move around in the file system on any disk attached to your Macintosh. Once you have found the image file that you want to import, click on Import or double-click on the file name. If you have selected a specific file type (anything other than "All files"),

Viewbox™ will bring the image into the display window. If the selected file type is "All Files", **Viewbox™** will assume that you are importing a non-specific image file and a dialog will appear prompting you to describe that file's format. The parameters available to describe the file format are: the number of rows in the image ("Rows:" editable text box); the number of columns in the image ("Columns:" editable text box); the number of bytes from the beginning of the file to the beginning of the data used to form the image ("Byte offset:" editable text box); the type of number that should be read in for each pixel ("Data Type" radio buttons); and whether the order of the bytes should be exchanged before interpreting each two-byte group of data ("Reverse bytes" check box). Once you have provided this description, click on OK or type a return, and **Viewbox™** will try to bring the image into the display window using the format information you provided; discrepancies between the provided description and the data making it impossible to create an image from the file will force an error and **Viewbox™** will display an alert. When an image is imported into **Viewbox™**, it will be selected and contrast enhanced to span the entire color scale.

For more information on	See also
Moving images with the mouse	• **Palette Options - Pointer**
Image Selection	• **Palette Options - Pointer**
Image manipulation	• **Contrast Enhance...** • **Change Color Scales** • **Change Image Colors**

New

New **is in the File menu. New creates a new image window ready for images. The image window is created with a generic name 'Untitled' followed by a number. When you create a new image window a space is created in the** ROI Statistics Window **where ROI statistics will be placed. Each image window has its own unique space in the** ROI Statistics Window.

For more information on	See also
ROIs	•**Palette Options - Pointer Rectangular ROI Creation, Irregular ROI Creation** • **ROI Statistics Window** • **Save ROIs...** • **Open ROIs...**
Windows	• **Close**
Importing Images into a new window	• **Import Image...**

Open ROIs...

Open ROIs... **is in the ROI menu.** Open ROIs... **opens an ROI file that was saved using** Save ROIs... **and applies those ROIs to any images that are highlighted.**

To apply ROIs that have been saved in an ROI file, select all images to which you want the ROIs applied. This is done using the shift-click approach, circling images, or any combination of the two. Then choose **Open ROIs...** from the ROI Menu. A dialog box will appear. This dialog box will allow you to move around in the file system on any disk attached to your Macintosh. Once you have found the saved ROI file that you want to use, click on Open or double-click on the file name and **Viewbox™** will apply the ROIs from that file to all selected images in the image window.

• *Special Notes:*
  Open ROIs... is enabled when *only images* are selected. If you have images and ROIs selected **Open ROIs...** will not enable.

For more information on	See also
Image and ROI selection	**•Palette Options - Pointer**
Windows	**• Close**
ROIs	**•Palette Options - Pointer Rectangular ROI Creation, Irregular ROI Creation • ROI Statistics Window • Save ROIs...**

Page Setup...

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Page Setup... **is in the File menu. Use** Page Setup... **to specify paper size, the orientation of your printed document, and any special printer effects.** Page Setup... **is different depending upon what printer you are using.**

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For more information on	See also
Page Setup Options	• Macintosh User's Guide • Printer manuals

Paste

Paste **is in the Edit menu.   Paste copies the information on the Clipboard into your display window. You can execute the** Paste **command only when the proper combinations exist of Clipboard contents, display window contents, and highlighted display window items.**

There are four possible arrangements of information on the Clipboard that affect the use of **Paste** in **Viewbox™**. These are 1) the Clipboard is empty or it has no information that **Viewbox™** can accept; 2) images, with or without ROIs on them; 3) ROIs only; and 4) the combination of images, with or without ROIs on them, and ROIs not on images. (You can see the contents of the Clipboard by executing the **Show Clipboard** command.) Whether or not **Paste** is enabled (the menu command name is drawn in black, as opposed to being drawn in gray when disabled) depends on which of these is true, and on the contents of the image display window.

The combination of conditions that must be satisfied to select **Paste**, for each of the above four cases, are as follows:

1) When the Clipboard is empty or it contains text or other non-**Viewbox™** items **Paste** is always disabled.

2) You may **Paste** images from the Clipboard whenever there is at least one empty image space in the window. Any ROIs on the images in the Clipboard will be **Paste**d as well, and added to the **ROI Statistics Window**. If there are more images than empty image spaces in the window you will be asked if you would like to **Paste** as many images as will fit.

3) When only ROIs are on the Clipboard you may only select **Paste** when you have highlighted images in the display window, but no highlighted ROIs. The ROIs will be **Paste**d onto the highlighted images, in the same image-relative position as they

appear on the Clipboard.

4) This is the most complicated situation: when both images, with or without ROIs, and non-image ROIs are on the Clipboard. **Paste** will only be enabled when only images are highlighted, as for case 3. You must also have at least one empty image space, as in case 2. The images on the

Clipboard will be placed in the empty image spaces, along with the ROIs on the images, while the non-image ROIs will be placed on the highlighted images. As in case 2, you will be alerted and asked for a response if there are more images on the Clipboard than there are empty image spaces in the display window.

Whenever images are **Paste**d they are placed in empty image spaces in the display window, starting at the upper left corner and proceeding across and down toward the lower right corner. Any ROIs on the images will be kept with the images. ROIs will always be added to the **ROI Statistics Window**, whether they were on images in the Clipboard or were on a blank Clipboard image space. They are numbered starting from one greater than the highest ROI number already existing and increase according to their order of being added to the window, as corresponds to their order on the Clipboard. All of the newly **Paste**d items are highlighted.

Once items have been **Paste**d, most notably images, you may always rearrange them with the mouse if you prefer them to be in different locations.

• *Special notes:*
You cannot **Paste** information from other image display programs into **Viewbox™** at this time.

For more information on	See also
Selection	•**Palette Options - Pointer**
Clipboard	• Macintosh User's Manual • **Copy** • **Cut** • **Paste** • **Show Clipboard**
Moving items with the mouse	•**Palette Options - Pointer**
ROIs	•**Palette Options - Pointer** **Rectangular ROI Creation,** **Irregular ROI Creation**

	• ROI Statistics Window **• Save ROIs...** **• Open ROIs...**

Print...

Print... **is in the File menu. Use** Print... **to print a copy of the current image window or** ROI Statistics Window **on the printer selected in Chooser.**

- *Special notes:*
  You must select Color/Grayscale in the print dialog. If you use the 6.0 Laser driver you can get grey-scale printouts on the Laser printer for image windows.

For more information on	See also
Print...	• **Page Setup...** • **Print One**
ROIs	•**Palette Options -** **Pointer** **Rectangular ROI Creation,** **Irregular ROI Creation** • **ROI Statistics Window** • **Save ROIs...** • **Open ROIs...**
Image manipulation	• **Contrast Enhance...**

Print One

Print One **is in the File menu. Use** Print One **to print a copy of the current image window or** ROI Statistics Window **on the printer selected in Chooser. The difference between** Print... **and** Print One **is that** Print One **does not bring up the print window (which allows you to specify the number of copies, the orientation of the printout, etc.).** Print One **uses the setting from** Print... **and sends it directly to the printer without any further input from the user.**

• *Special notes:*
   If you use the 6.0 Laser driver you can get grey-scale printouts on the
   Laser printer for image windows.

For more information on	See also
Print...	• **Page Setup...** • **Print ...**
Image manipulation	• **Contrast Enhance...**

Quit

Quit **is in the File menu.** Quit **terminates a session of** Viewbox™. **If you have made any changes to the image window** Viewbox™ **will ask if you wish to save the document. If you select Yes, a file will be saved. This file should be thrown away in this version of** Viewbox™ **because it contains no data.**

> • *Special notes:*
>   In a future version the **Save** command will be implemented and data will be saved to the file.

For more information on	See also

ROI Statistics

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ROI Statistics **is in the Window menu.   ROI Statistics displays the ROI Statistics Window. This command is useful to access the ROI Statistics Window when many windows are open.**

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For more information on	See also
ROI Statistics Window	**• ROI Statistics Window**

Save ROIs...

Save ROIs... **is in the ROI menu.** Save ROIs... **saves selected ROIs on images in an image window into an ROI file. The ROIs in the file can then be reapplied to other images in** Viewbox™ **using the** Open ROIs... **command.**

To use **Save ROIs...**, first select the ROIs you want saved. ROI selection is accomplished by clicking inside ROIs, circling ROIs, shift-clicking ROIs, or any combination of these techniques. Be sure that no images are selected because **Save ROIs...** is enabled when *only ROIs* are selected. Then select **Save ROIs...** from the ROI Menu. A dialog box will appear. It will request a file name and allow you to move around in the file system on any disk attached to your Macintosh. Once you have found where you want to store the ROIs and have typed in a name, click on Save or press Return on the keyboard and the file will be saved.

For more information on	See also
Image selection	•**Palette Options - Pointer**
ROIs	•**Palette Options - Pointer Rectangular ROI Creation, Irregular ROI Creation** • **ROI Statistics Window** • **Open ROIs...**

Select All Images

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Select All Images **is in the Edit menu.** Select All Images **will select all the images in the image window and leave all the ROIs unselected.**

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Select All Images is equivalent to selecting all the images using the pointer. It does not change anything in the image window except which items are selected.

• *Special Notes:*
Since selection with the pointer is not considered an **Undo**able action, similarly **Select All Images** can not be undone. Using **Select All Images** will not change the command that would have been available to be undone prior to using **Select All Images**.

For more information on	See also
Selection	•**Palette Options - Pointer** •**Select All ROIs**

Select All ROIs

Select All ROIs **is in the Edit menu.** Select All ROIs **will select all the ROIs in the image window and leave all the images unselected.**

> **Select All ROIs** is equivalent to selecting all the ROIs using the pointer. It does not change anything in the image window except which items are selected.
>
> • *Special Notes:*
> Since selection with the pointer is not considered an **Undo**able action, similarly **Select All ROIs** can not be undone. Using **Select All ROIs** will not change the command that would have been available to be undone prior to using **Select All ROIs**.

For more information on	See also
Selection	•**Palette Options - Pointer** •**Select All Images**

Show Clipboard

Show Clipboard **is in the Edit menu.**   Show Clipboard **displays the Clipboard with the most recently cut or copied data. This command is useful to determine what specific data is on the Clipboard.**

For more information on	See also
Clipboard	• Macintosh User's Manual • **Copy** • **Cut** • **Paste**

Time-Activity Curve...

Time-Activity Curve... is in the Analysis menu. Time-Activity Curve… **will generate series data in a text format that can be used by Microsoft Excel™ or other programs. Note that not all of the images in the series you want to do a time-activity curve for need to be imported.** Viewbox™ **requires that only one image from a series be imported. It will take care of the rest of the images you select.**

To use **Time-Activity Curve...** you must create ROIs or use existing ROIs on images in an image window. Then you must select the ROIs you want **Time-Activity Curve...** to use; this may be done by clicking on one ROI, shift clicking on multiple ROIs, or circling the desired ROIs with the arrow cursor in the Pointer mode (see **Palette Options**). Next, select **Time-Activity Curve...** from the Analysis Menu. A dialog will appear.

The dialog is very similar to that used for importing a file except that in this first dialog you are to select a folder to expand. Watch the button in the lower right corner of the dialog to see what folder you have currently chosen to expand. Once you have chosen a folder, click on the Expand… button and a second dialog will appear with a list of files in the expanded folder. You may now select multiple files for inclusion in your time-activity curve.

The popup items below the file lists allow you to select the type of files to display in the file lists. In the second file list, these are the images that can be included in your time-activity curve. When UW PET images are chosen, the file names in the second dialog file list will appear in sorted chronological order, rather than in alphabetical order.

Select the images that you would like to include in the time-activity curve from the files in the second file list. To select contiguous blocks of images, first click the mouse at the start of the block, hold down the Shift or Command key, and drag to the last image you want selected. Contiguous blocks can also be selected by clicking on the first image and then holding the Shift key down and clicking on the last image, without dragging. To select or deselect images that are not contiguous, hold the Command key down and click on them.

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When you have selected the files you wish to include, click on the OK button and your time-activity curve data will be created. If you select Cancel at this point, you will be returned to the first, folder expansion, dialog where you can choose a different folder to expand.

When the time-activity curve data have finished being created you will be asked to specify a file name. The series data will be saved in this file.

For more information on	See also
Selection	•**Palette Options - Pointer**
Importing files	•**Import**
ROIs	•**Palette Options - Pointer Rectangular ROI Creation, Irregular ROI Creation** • **ROI Statistics Window** • **Save ROIs...** • **Open ROIs...**

Undo/Redo

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Undo/Redo **is in the Edit menu.   Undo lets you change your mind. It lets you reverse your last command.**

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As an example, if you just imported an image and decided you really did not want that image you could go to the Edit menu and select **Undo Import**. If you immediately change your mind and decide you really did want the image after all you could go to the Edit menu and select **Redo Import**. Remember that **Undo/Redo** only works with the very last command. If you do another command in between, it will act only on that last command, not the previous one.

For more information on	See also

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