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DiMAGE[®] *Image Viewer Utility*

9224-2776-21 H-A112

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INSTRUCTION MANUAL

BEFORE YOU BEGIN

Before installing the DiMAGE Image Viewer Utility software, read the data-transfer section in the camera manual. This section details how to connect the camera to a computer using the supplied USB cable. Users with Windows 98/98SE or Mac OS 8.6 will need to install driver software before connecting the camera to a computer. Image data can also be downloaded with an SD memory or MultiMedia card reader. The examples in this manual assume the camera is connected to the computer with a USB cable as described in the camera manual.

This instruction manual does not provide instruction in the basic operation of personal computers, or the basic operation of Windows or Macintosh operating systems; refer to the manuals supplied with the computer.

The examples in this manual use Windows software. The appearance of the screens may differ from the examples when using Macintosh or other Windows operating systems.

Every precaution has been taken to ensure the accuracy of this material. Contact Minolta if you have any questions. Minolta is not responsible for any loss or damage caused by the use of this software.

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SYSTEM REQUIREMENTS

IBM PC/AT compatible computers

133MHz Pentium processor or higher

Windows 95, Windows 98/98 Second Edition, Windows Me, Windows 2000 Professional, Windows XP, Windows NT4.0 (Service Pack 6 or later)

64MB or more of RAM

100MB or more of available hard-disk space

A True Color (24 bit) or greater monitor with a minimum resolution of 640 X 480 (VGA). 1024 X 768 (XGA) or higher is recommended.

CD-ROM drive

Apple Macintosh series computers

PowerPC 100MHz or higher

Mac OS 8.6 - Mac OS 9.1

64MB or more of available RAM

100MB or more of available hard-disk space

A 24-bit color or greater monitor with a minimum resolution of 640 X 480. 1024 X 768 or higher is recommended.

CD-ROM drive

Before installing the DiMAGE Image Viewer Utility

RAM-stationed programs such as anti-virus or installation-monitoring software may cause the installer to fail. Remove or disable these programs before installing the DiMAGE Image Viewer Utility. Reinstall or enable the software when the installation is complete.

Installing the DiMAGE Image Viewer Utility - Windows

In the example below, the hard disk drive is drive C, and the CD-ROM drive is drive D. The letters designating the drives will vary between computers. With Windows 2000, NT4.0, or XP, the software should be installed with the Administrator privilege.



Turn on the computer to start Windows.

Insert the DiMAGE Software CD-ROM into the CD-ROM drive.

- The DiMAGE Image Viewer Utility Installer window will open automatically.

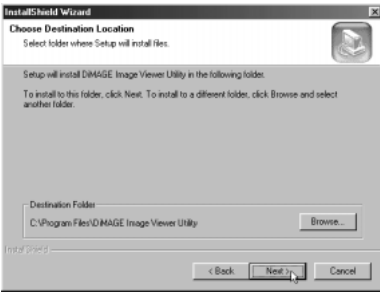
Click the “Starting up the DiMAGE Image Viewer Utility installer” button to begin installation.

The welcome window will open. Click “Next>” to continue.



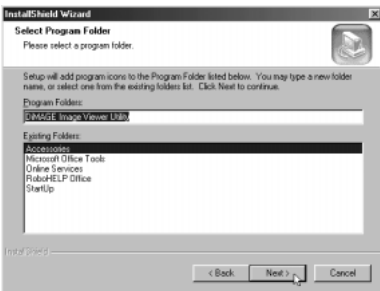
The license agreement appears. If you accept the agreement, click “Yes” to continue the installation routine.

- Read the entire license agreement carefully before continuing. If you do not agree to the terms, click “No” to exit the installation program.



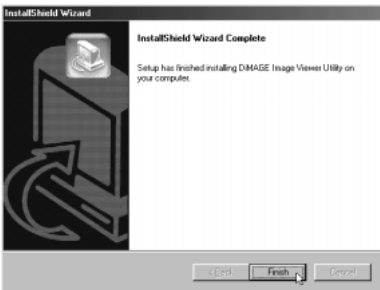
To install the software in the default location - C:\Program Files\DiMAGE Image Viewer Utility, click “Next >.”

- To install the software in a different location, click browse button to display the folder selection window. Specify the directory in which to install the software.



The name of the default program folder is displayed. To install the software icons in this folder, click “Next>.” Installation will begin.

- To install the software icons in another folder, select one of the folders listed in the existing-folders box below. Click “Next>” to begin installation.



When the software installation has been completed, a message will be displayed. Click “Finish.”

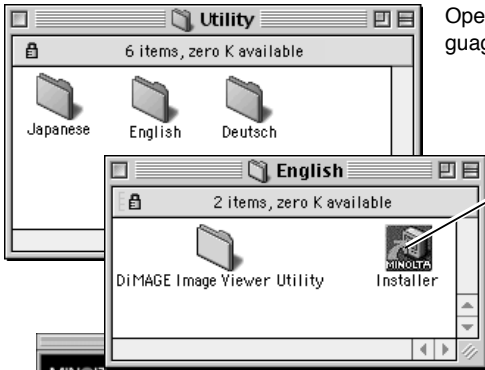
- The DiMAGE Image Viewer Utility installer window will be displayed. Click “Finish” to close the window.

Installing the DiMAGE Image Viewer Utility - Macintosh

Turn on the computer to start the operating system.

When the desktop appears, insert the DiMAGE Software CD-ROM into the CD-ROM drive.

- The contents of the CD-ROM appear automatically. If the contents do not appear, double-click the CD-ROM icon to open it.



Open the Utility folder, and then open the appropriate language folder.

Double-click on the installer icon to start the Installation program.



When the installation screen appears click "Next>" to begin the setup.

The license agreement appears. If you accept the agreement, click "Yes" to continue the installation routine.

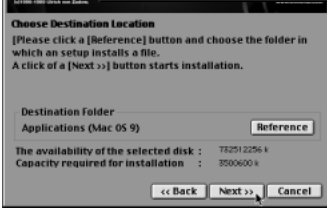
- Read the entire license agreement carefully before continuing. If you do not agree to the terms, click "No" to exit the installation program.



The location for the DiMAGE Image Viewer Utility files must be specified. Click the reference button.



Using the folder-selection dialog box, select the location where the software should be installed. Click "Choose."

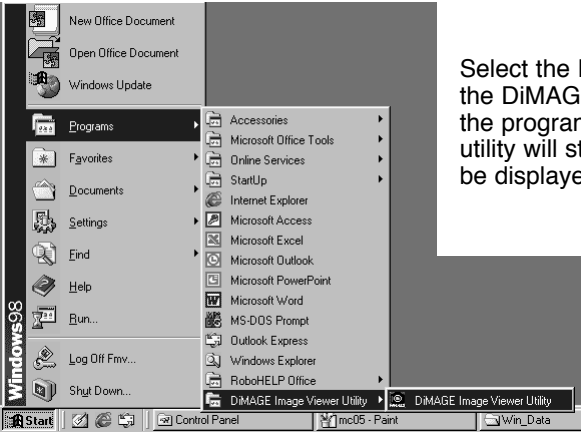


Confirm the installation location on the installer screen. Click "Next >>" to install the DiMAGE Image Viewer Utility.

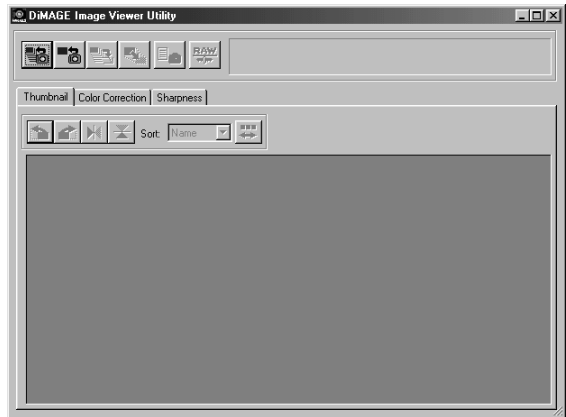


A window will appear when the software has been installed. Click "Quit" to exit the installer.

Starting up the Image Viewer Utility - Windows

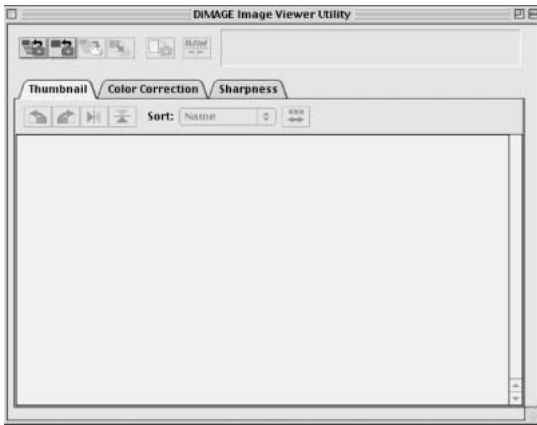
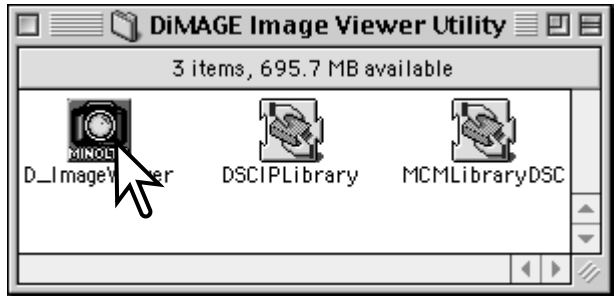


Select the DiMAGE Image Viewer Utility from the DiMAGE Image Viewer Utility folder in the program option of the start menu. The utility will start up and the main window will be displayed.



Starting up the Image Viewer Utility - Macintosh

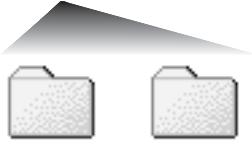
Open the DiIMAGE Image Viewer Utility folder. Double-click the DiIMAGE Image Viewer Utility icon to start up the application. The main window of the utility will be displayed.



Memory card folder organization

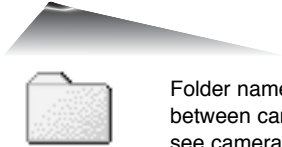


Drive Icon



Dcim

Misc



100MLT09

Folder names vary between cameras, see camera manual.



PICT0001.TIF

Super-fine image

PICT0002.JPG

Fine, standard, or economy image

When the camera is connected to a computer, a drive icon representing the camera will be displayed. Double-clicking on the icon will reveal two folders; the Dcim folder contains the camera images, and the misc. folder contains DPOF print files (see camera manual).

Opening the Dcim folder will show all image folders on the card. Camera images are stored in these folders. Only still-images can be opened with the DiIMAGE Viewer Utility. QuickTime can be used to playback movie and audio recordings.

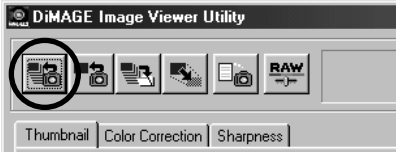
Still-image file names begin with "PICT," followed by a four-digit file number, and a tif or jpg extension. See the camera manual for information on folder names and file organization for your specific camera.

Software Notes

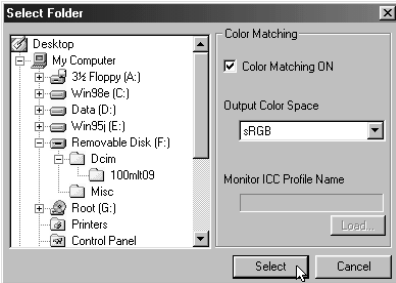
Recording data is contained in an exif tag attached to the image file. If an image is opened in a image-processing application that does not support exif tag data (e.g. Adobe Photoshop), and then the image is saved overwriting the original data, the exif tag information will be erased. When using software other than the DiIMAGE Image Viewer Utility, always rename the image file to protect the exif tag data.

Loading all the still-image files in a folder

Confirm the camera is connected to the computer and a memory card is inserted.

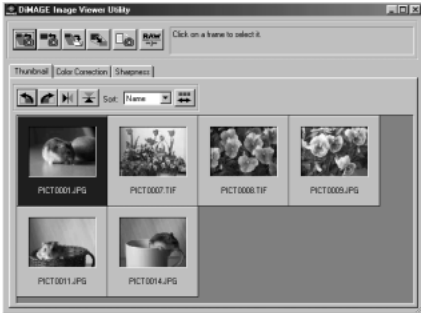


Click the load-all-images button in the main window.



The operating system's folder selection dialog box appears. Select the folder where image files are stored. Click the select or choose button to load all the JPEG and TIFF files in the folder.

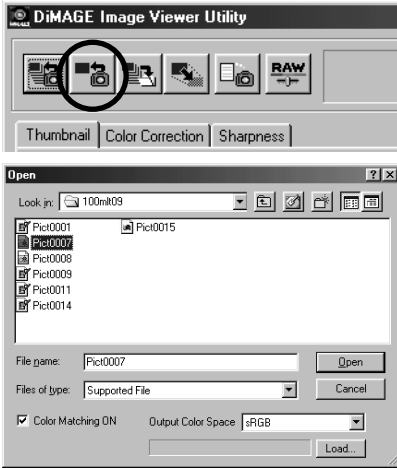
- The color-matching function can be activated in this window. See page 50 for details.
- Folder names vary between cameras, see camera manual.



Thumbnails of still-image files in the selected folder are displayed.

- If the folder contains a large number of images, the display area can be resized by clicking and dragging the bottom right corner of the utility window or the thumbnails can be scrolled with the scroll bar.

Loading individual still-image files



Click the load button in the main window.

Use the open dialog box to locate the desired image file. Click “open” to load the image and thumbnail.

- The color-matching function can be activated in this window. See page 50 for details.
- Folder names vary between cameras, see camera manual.

Deleting thumbnails

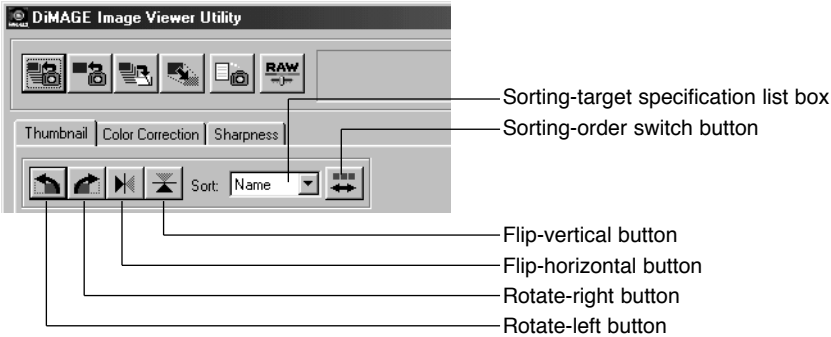


Click on the thumbnail image to be deleted; the frame around the thumbnail will darken.

Press the delete key on the keyboard to remove the thumbnail.

- Only the thumbnail image is deleted from the display area. The actual image file is not affected and can be re-loaded into the image viewer.

Rotate, flip, and sort thumbnails



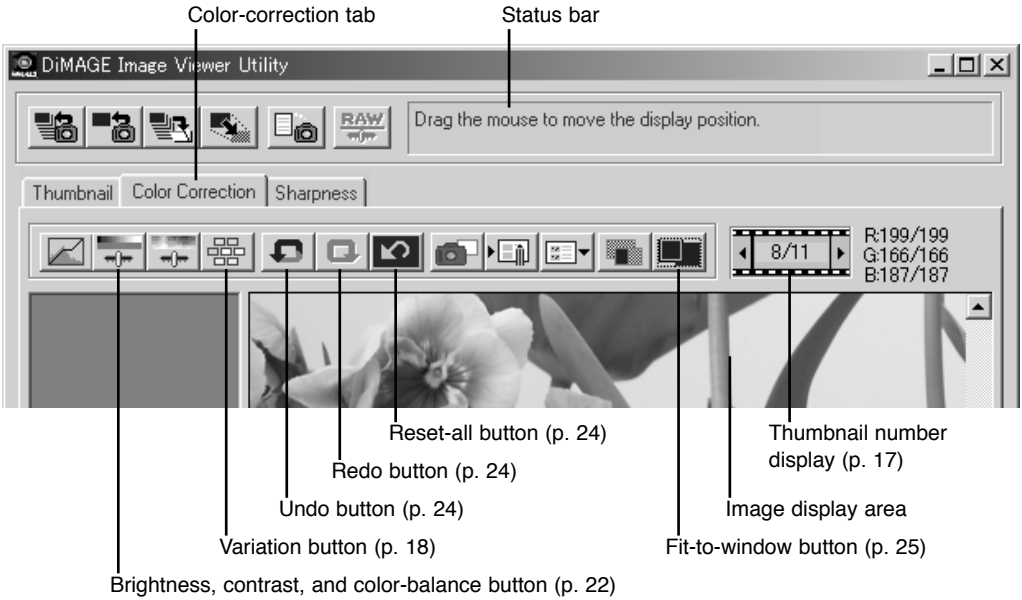
Rotate - Click on the thumbnail frame; the frame will darken to indicate it is selected. Click on the appropriate rotate button. The rotate-right button rotates the thumbnail 90° clockwise and the rotate-left button rotates the thumbnail 90° counterclockwise each time the buttons are clicked.

Flip - Click on the thumbnail frame; the frame will darken to indicate it is selected. Click on the appropriate flip button. When an image is flipped, it will create a mirror image.

Sorting - The thumbnail images can be sorted by name, date, or extension. Simply select the sorting category from the sorting-target specification list box and the thumbnails will be automatically arranged within the selected category. The sorting-order switch button alternates between normal and reversed order.

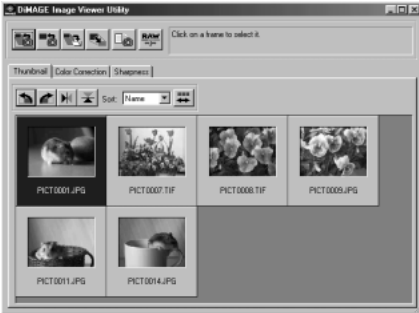
Color-correction window

Clicking the color-correction tab in the main window displays the utility's image-processing tools. Adjustments to color, contrast, brightness, and saturation can be made.



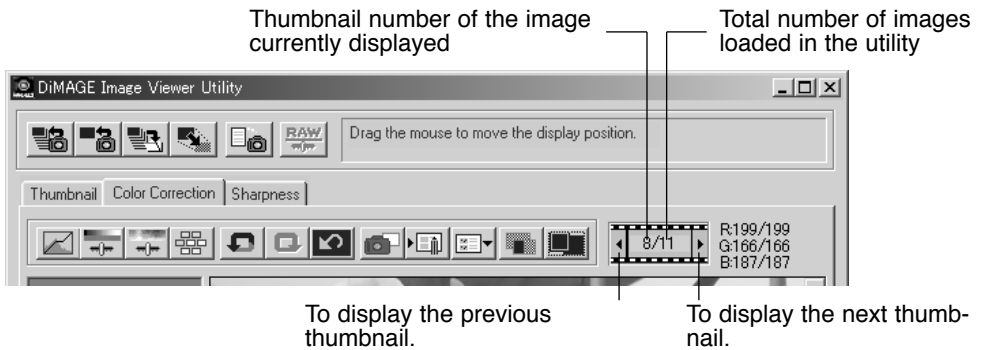
This section contains details on the basic image-processing tools in the DiIMAGE Image Viewer Utility. For descriptions of the advanced tools, see pages 30 through 49.

Displaying images in the color-correction window



In the thumbnail display, an image can automatically be loaded into the color-correction window. Simply double-click on a thumbnail to display the image in the color-correction window.

The color-correction window will display the thumbnail number and the total number of thumbnails loaded into the image viewer. Clicking on the arrows on each side of the display will load the previous or next thumbnail image.



Variation palette

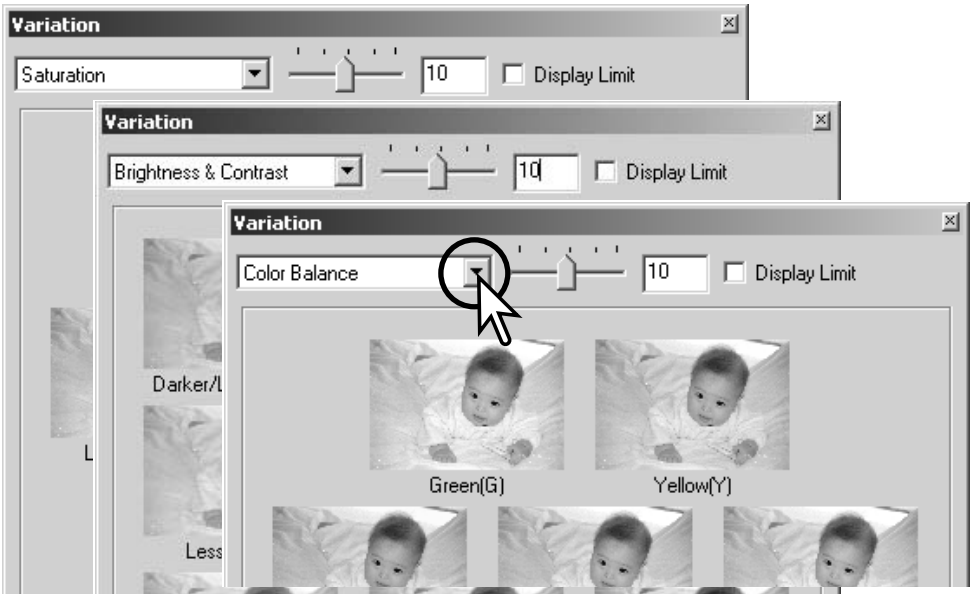
The variation palette allows an image to be corrected by comparing it to other slightly corrected images surrounding it. This is an easy method to correct images for individuals who are inexperienced in image processing or photofinishing.



Click the variation button to display the palette.

Click the arrow next to the variation list box to select the image quality to be corrected: color balance, brightness and contrast, or saturation.

- Each variation palette shows the current image in the center with corrected sample images displayed around it.



Color-balance variation

Six images with a slight color correction are displayed around a thumbnail of the original image. For more about color, see page 23.

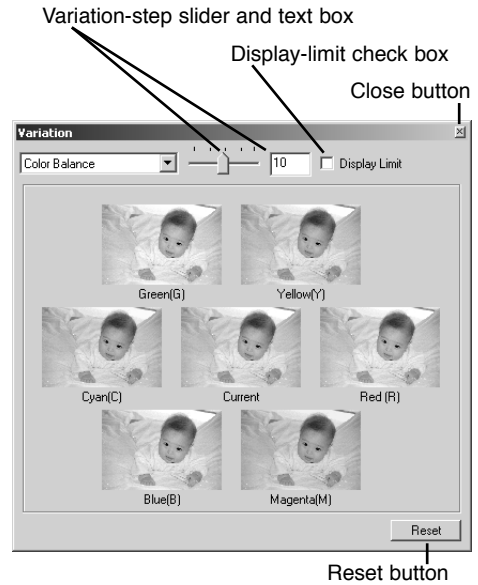
Drag the variation-step slide bar, or enter the correction level into the text box to set the degree of correction.

- The initial setting is 10. The correction step can be set between 1 and 20.
- Checking the display-limit check box will indicate when any of the image values exceed 0 (black limit) or 255 (white limit) with the complementary color. For example, if the blue area of the image exceeds those values, the limit is displayed with the complementary color, yellow.

Click the best image among the six frames.

- The selected image becomes the new center surrounded by six new images corrected by the designated step. This procedure can be repeated until the desired correction is obtained.
- Click the reset button to cancel any changes.

Click the close button to close the palette and apply any image corrections.



Brightness & contrast variation

Eight images with a slight correction to brightness and contrast are displayed around a thumbnail of the original image. Brightness controls how light or dark the image is. Contrast controls the difference between the tones of the image; as the contrast is increased the dark tones will become darker and the light tone will become brighter. Contrast also affects the apparent sharpness of the image.

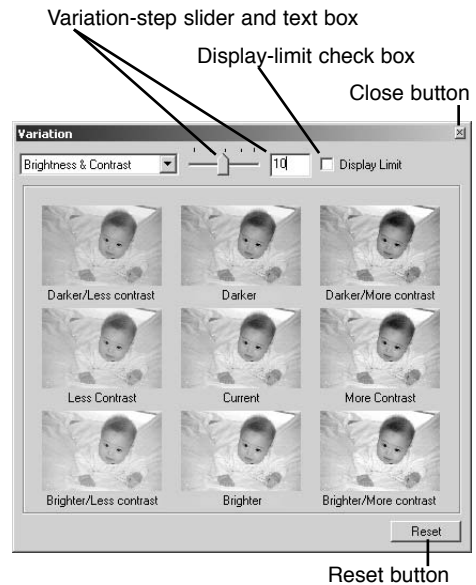
Drag the variation-step slide bar, or enter the correction level into the text box to set the degree of correction.

- The initial setting is 10. The correction step can be set between 1 and 20.
- Checking the display-limit check box will indicate when any of the image values exceed 0 (black limit) or 255 (white limit) with the complementary color. For example, if the white area of the image exceeds those values, the limit is displayed with the complementary color, black.

Click the best image among the eight frames.

- The selected image becomes the new center showing eight new images corrected by the designated step. This procedure can be repeated until the desired correction is obtained.
- Click the reset button to cancel any changes.

Click the close button to close the palette and apply any image corrections.



Saturation variation

Two images with a slight saturation correction are displayed on each side of a thumbnail of the original image. Saturation affects the vividness of the colors

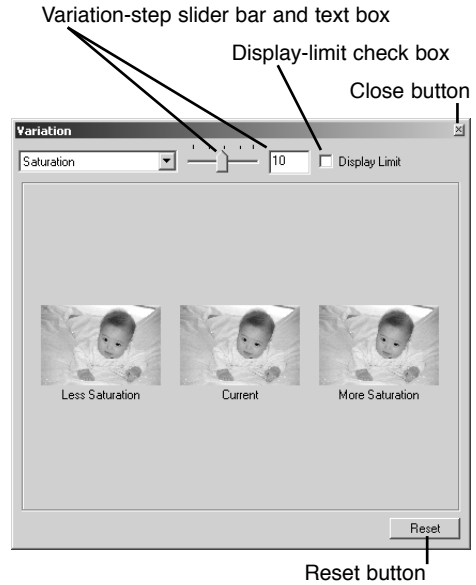
Drag the variation-step slide bar, or enter the correction level into the text box to set the degree of correction.

- The initial setting is 10. The correction step can be set between 1 and 20.
- Checking the display-limit check box will indicate when any of the image values exceed 0 (black limit) or 255 (white limit) with the complementary color.

Click the better of the two images.

- The selected image becomes the new center showing two new images corrected by the designated step. This procedure can be repeated until the desired correction is obtained.
- Click the reset button to cancel any changes.

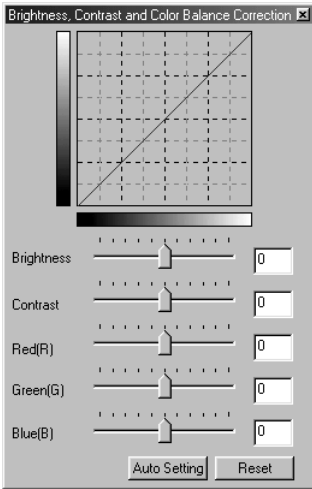
Click the close button to close the palette and apply any image corrections.



Brightness, contrast, and color-balance corrections



Click on the brightness, contrast, color-balance button to open the correction palette.



Drag the brightness, contrast, or color sliders, or enter specific values in the corresponding text box to make corrections.

- Dragging each slider to the right or inputting a positive number in the text box increases the brightness, contrast, and color.
- Changes will be reflected in the displayed image and in the graph at the top of the palette.
- Click the reset button to cancel changes.

Auto-setting button

Clicking the auto-setting button corrects the brightness and contrast automatically without affecting the color balance.

- Click the reset button to cancel any changes.

An introduction to color

In photography, red, green, and blue are the primary colors. The secondary colors, cyan, magenta, and yellow, are made from combining the primary colors: cyan = blue + green, magenta = blue + red, and yellow = red + green. The primary and secondary colors are grouped in complementary pairs: red and cyan, green and magenta, and blue and yellow.

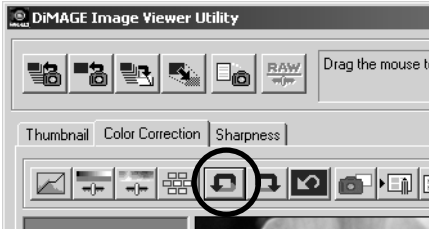
Knowing the complementary colors is very important in color balancing. If the image has a specific color cast, either subtracting the color or adding its complementary color will create a natural looking image.



Adding or subtracting equal parts of red, green, and blue will have no affect on the color balance. However, it can change the overall image brightness and contrast. Usually, no more than two color channels are needed to color balance an image.

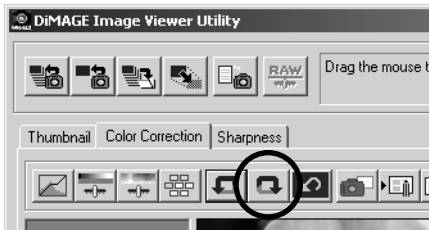
Color balancing is a skill that develops with practice. While the human eye is extremely sensitive in making comparative judgements, it is a poor tool when making absolute measurements of color. Initially, it can be very difficult to distinguish between blue and cyan, and red and magenta. However, adjusting the wrong color channel never improves an image; subtracting blue from an image that is too cyan will give a green cast to the image.

Undoing an image correction



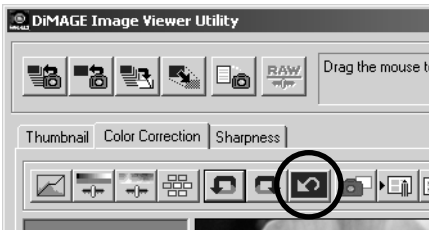
Click the undo button to cancel the last image correction applied to the image. You can continue to undo image corrections as the computer memory capacity allows.

Redoing a canceled image correction



Click the redo button to reapply the last image correction canceled with the undo button.

Resetting all image corrections



Click the reset-all button to cancel all image corrections applied to the image.

The image display area

Fit-to-window button

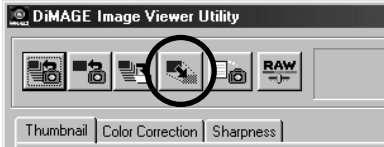
Normally, an image is displayed based on its size and resolution. When the image is too large for the display area, clicking the fit-to-window button will automatically resize the image to fit the display area. Clicking the button again displays the image at its original size.



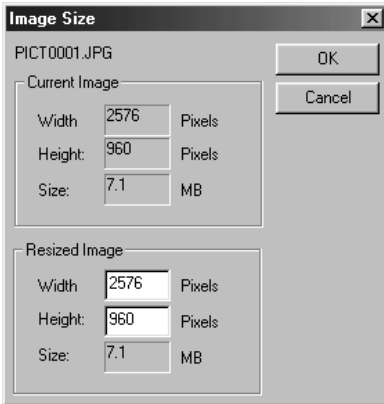
Resizing the utility window

The utility window can be resized by clicking and dragging the bottom right corner. If the fit-to-window function is active, the displayed image will automatically adjust to fit the display area.

Resizing an image to be saved



With the image to be resized displayed in the color-correction window or the thumbnail selected in the thumbnail window, click the image-size button.



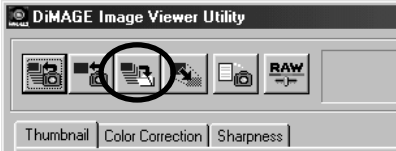
Enter the new width or height value in the text boxes.

- Only one value needs to be entered. The other value will adjust automatically to keep the image proportions unchanged.
- The image can only be reduced.

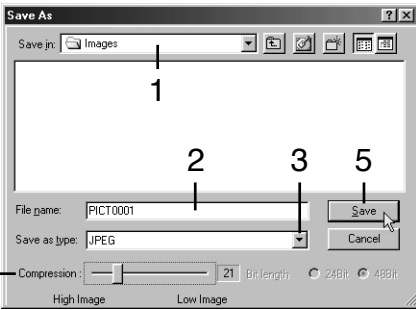
Click the OK button to set the new dimensions.

- The image is resized when it is saved.

Saving single images



With the image to be saved displayed in the color-correction window or the thumbnail selected in the thumbnail window, click the save button.



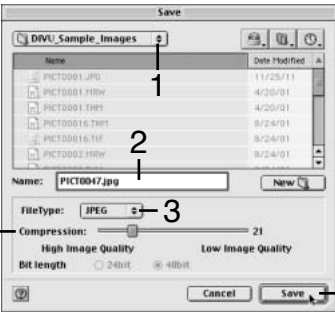
In the save dialog box, specify the location to save the file (1).

Enter the file name without an extension (2).

Specify the file format of the saved image from the drop-down menu (3).

- The file does not need to be saved in the original file format.
- If JPEG is selected, the compression rate must be fixed using the slide bar at the bottom of the dialog box (4). The higher the compression rate, the smaller the file size, and the lower the image quality.

Windows



Click the save button (5) to save the image.

Macintosh

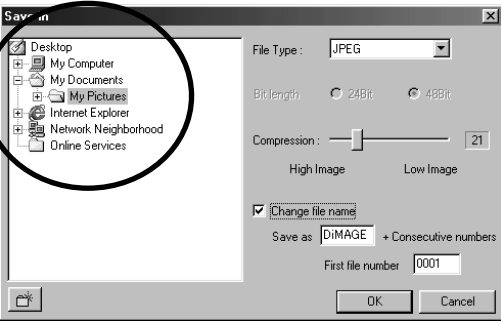
Saving multiple images

Select the thumbnails of the images to be saved.

- To select multiple images, press and hold the control key (Windows) or command key (Macintosh) and then click on each image to be saved; the selected frames will have a dark border. To deselect an image, click on the thumbnail a second time while holding the control key (Windows) or command key (Macintosh). To select consecutive images, press and hold the shift key and then click on the first and last image of the series. Press the control key (Windows) or command key (Macintosh) and "A" key at the same time to select all frames.

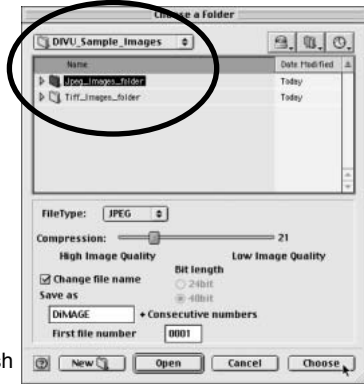


Click the save button in the main window.

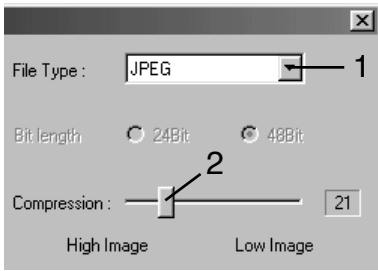


Windows

In the save dialog box, specify the location to save the files.



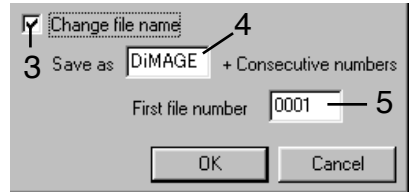
Macintosh



Specify the file format of the saved images from the drop-down menu (1).

- The files do not need to be saved in the original file format.
- If JPEG is selected, the compression rate must be fixed using the slide bar in the dialog box (2). The higher the compression rate, the smaller the file size, and the lower the image quality.

If two or more files have the same name, or to create a new file name with a serial number, click the change-file-name check box (3).

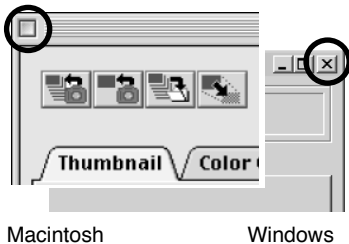


Enter the new file name (4) up to ten characters.

Enter the first number of the serial number (5) up to five digits.

Click the OK (Windows) or choose (Macintosh) button to save the images.

Closing the DiIMAGE Image Viewer Utility



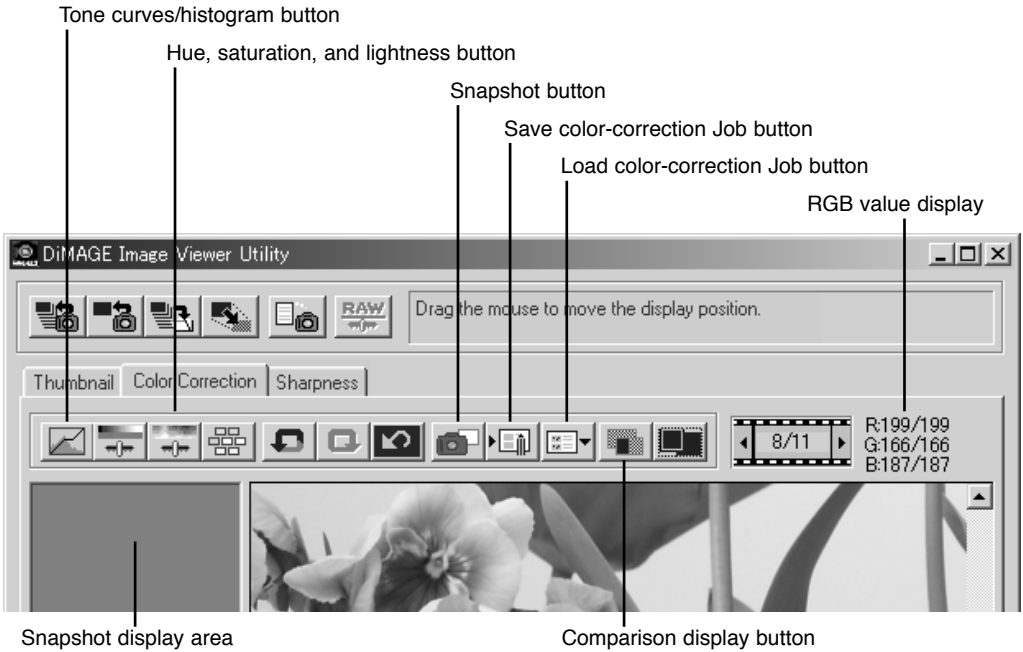
To close the DiIMAGE Image Viewer, simply click the close box at the top of the utility window.

Macintosh

Windows

ADVANCED IMAGE PROCESSING

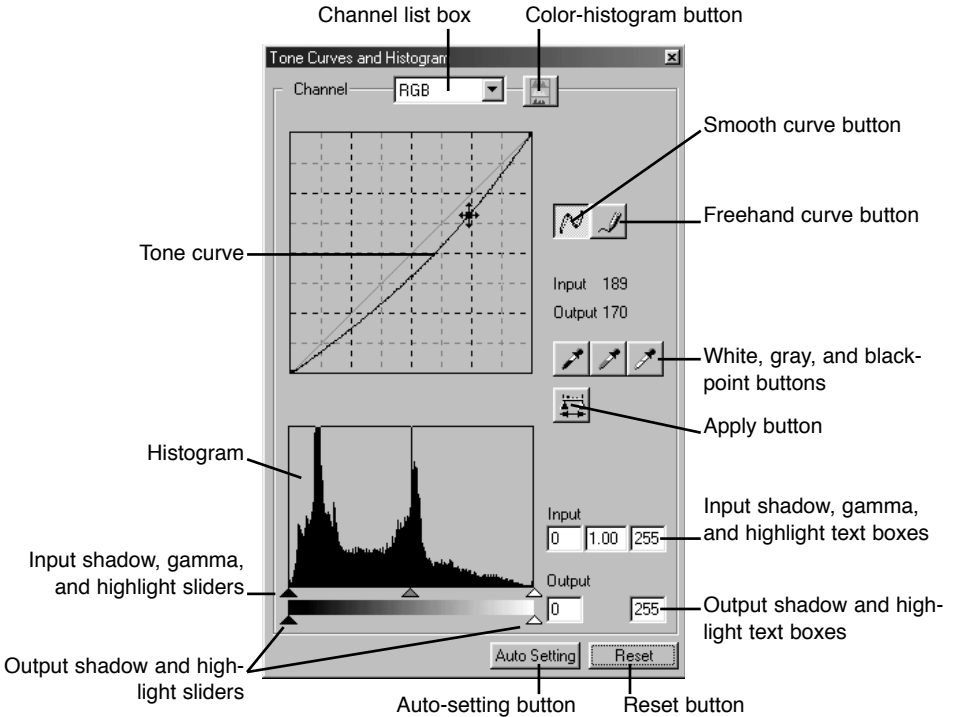
This section covers the advanced image-processing tools in the image viewer utility. Adjustments to color, contrast, brightness, hue, and saturation can be made. Functions to view and save image corrections are also available. The basic image-processing section on pages 16 through 25 should be read before continuing.



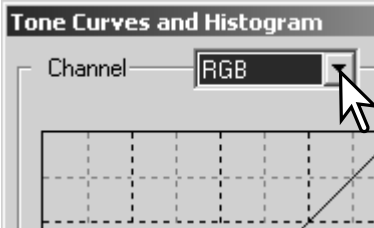
The RGB display will show the color values for any point on the image. Simply place the mouse pointer on the image area to see the RGB values of that point. Pressing the shift key (Windows) or command key (Macintosh) will display the CMY values.

The tone curve / histogram palette

Click the tone-curve/histogram button to display the palette.

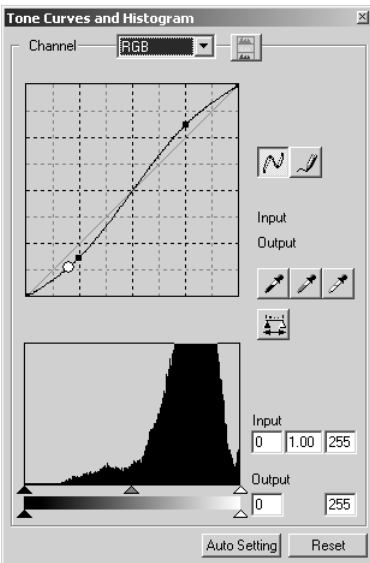


Using the tone curve



Click the arrow next to the channel box to select the channel from the drop-down menu.

- To make adjustments to the color balance of the image, select the appropriate color channel. To adjust the contrast or brightness of the image without affecting the color, select the RGB channel.
- The tone curves can be displayed with keyboard shortcuts. While holding the control key (Windows) or command key (Macintosh), press “1” to display the red channel, “2” to display the green channel, “3” to display the blue channel, or “0” (zero) to display the RGB channel.



Place the mouse pointer over the tone curve. Click and drag the curve.

- Each time the tone curve is clicked, a new node will be attached to the curve. The nodes can be moved by clicking and dragging.
- The input and output levels of the node are displayed as it is moved. The input level (horizontal axis) refers to the original image, and the output level (vertical axis) refers to the correction applied to the image.
- Any corrections made on the tone curve are immediately applied to the displayed image.
- By placing the mouse pointer on the displayed image, the grey or color level of that point will be indicated on the tone curve by a white circle.
- The reset button cancels all corrections in all channels.

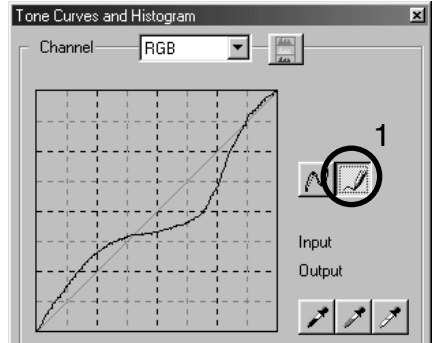
Drawing tone curves by freehand

Click the freehand-curve button (1).

- The mouse pointer changes to the pencil tool when placed in the tone-curve box.

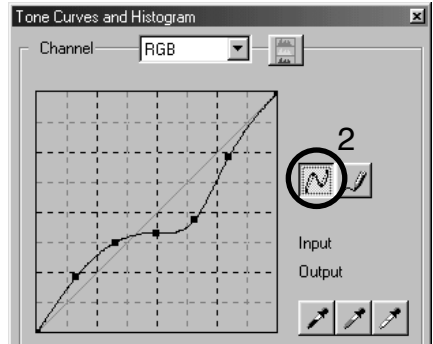
Click and drag the pointer to draw a new curve.

- Extreme image manipulations are possible with the freehand curve tool.

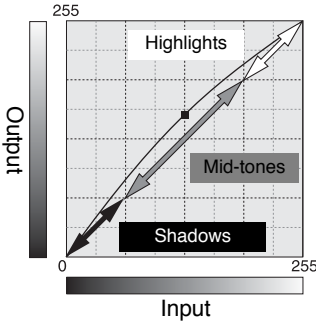


To smooth a rough freehand curve, click the smooth-curve button (2).

- Nodes will be automatically placed on the curve and can be adjusted with the mouse.
- With extreme freehand curves, the smooth curve button may significantly change the shape of the curve. Press the undo button to return to the original freehand curve.



A short guide to tone-curve corrections

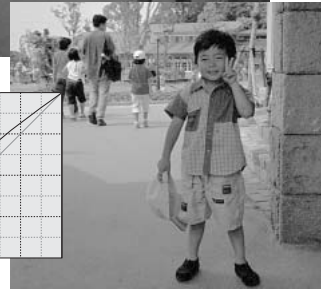
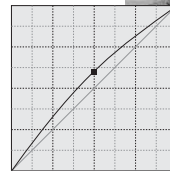


The tone curve is a graphic representation of the brightness and color levels of the image. The bottom axis is the 256 levels of the original image (input data) from black to white. The vertical axis is the corrected image (output data) with the same scale from top to bottom.

The bottom left portion of the graph represents the dark colors and shadow areas of the image. The middle section represents the mid-tones: skin, grass, blue sky. The top right section is the highlights: clouds, lights. Changing the tone curve can affect the brightness, contrast, and color of the image.

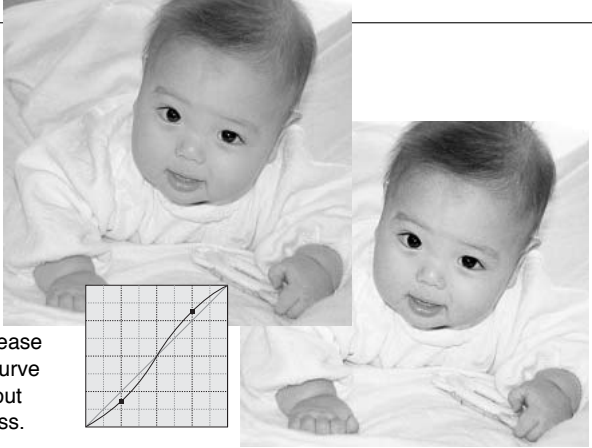
This is a simple technique to make a subject hidden in the shadows brighter. Unlike the brightness level control (page 22), this method of correction will not lose details in the highlight areas of the image.

With the RGB channel selected, place the smooth-curve cursor on the center of the curve. Click and drag the curve up. Look at the displayed image to judge the result. The adjustment can be very small and still have a significant impact on the image. Moving the tone curve down will make the image darker.

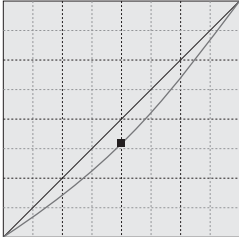


The contrast of an image can be changed. The light blue 45° line on the tone-curve graph represents the original contrast of the image. Making the angle of the tone curve greater than 45° will increase the contrast of the image. Making the angle less than 45° will reduce the contrast.

With the RGB channel selected, click on the tone curve near the top and bottom to add two nodes. Slightly move the top node up and the bottom node down. This will increase the angle of the central portion of the tone curve and increase the contrast of the image without making an overall change in image brightness.



By selecting individual color channels on the tone curve, adjustments to the overall color of an image can be made. This can be used to eliminate unnatural color casts or add warmth to a picture.



If the image is too red, green, or blue, simply drag the corresponding color-channel curve down until the color appears natural. If the color cast is predominantly one of the secondary colors, cyan, magenta, or yellow, move the curve of the complementary color up. For example, if the image is too yellow, move the blue curve up. For more on color, see page 23.

White, black, and gray-point corrections

Advanced image corrections can be made by specifying a white, black, and gray point within the image. Locating an appropriate neutral area within the image is critical to correctly calibrate the software. When the dropper tool is selected, the RGB display is active and can be used to evaluate the image area. All changes are immediately reflected in the displayed image.

Click the white-point button.

- The mouse pointer changes to the white dropper tool.

Click on the brightest neutral area of the image to define it as the white point.

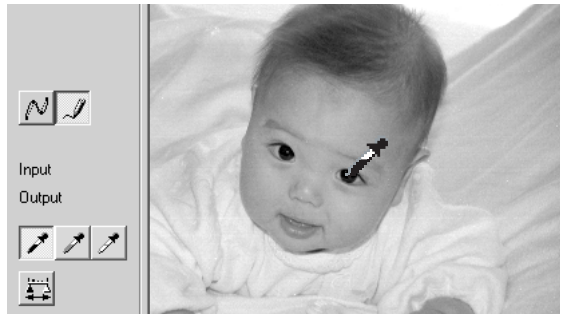
- The values of the image will be adjusted based on the selected point. The default level for the white point is 255 for each RGB channel.



Click the black-point button.

Click on the darkest neutral area of the image to define it as the black point.

- The values of the image will be adjusted based on the selected point. The default level for the black point is 0 for each RGB channel.

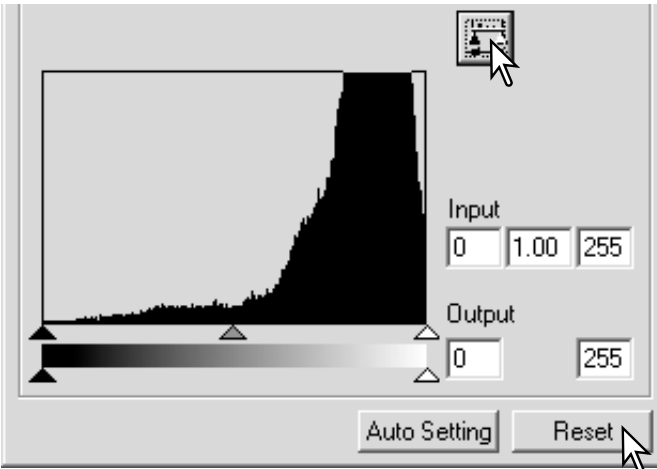
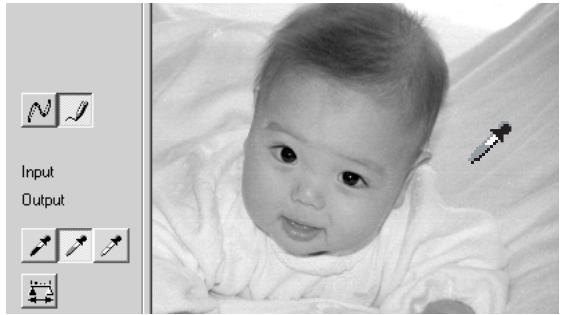


Click the gray-point button.

- The grey point controls the color of the image.

Click a neutral area of the image to be defined as the gray point.

- The area used to calibrate the gray point must be neutral. The brightness level of the area is not important, but if the area has a definite color, the image will not be color balanced correctly.



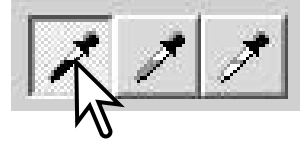
Click and hold the apply button to show the change on the histogram.

Click the reset button to cancel all corrections.

Setting the white and black-point values

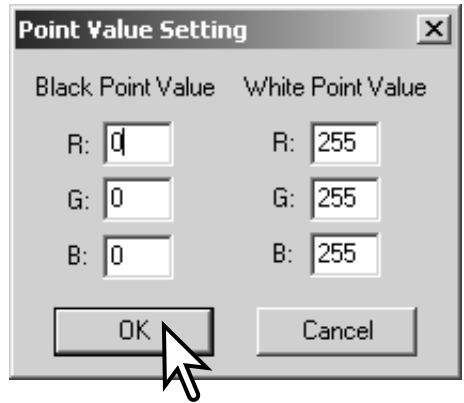
The white and black-point values are set to 255 and 0 for each RGB level. Changing these values allow the calibration of an image with no true white or black. This is an advanced image-processing tool.

Double-click on either the white-point or black-point button to activate the point-value-setting dialog box.



Input the new white-point or black-point values. Click [OK].

- With the point-value-setting dialog box open, the mouse pointer can be used to measure the color of any point on the displayed image. Press the shift key (Windows) or command key (Macintosh) to display the CMY levels in the RGB display. The RGB display shows the original values for the image on the left and the current values for the image on the right.

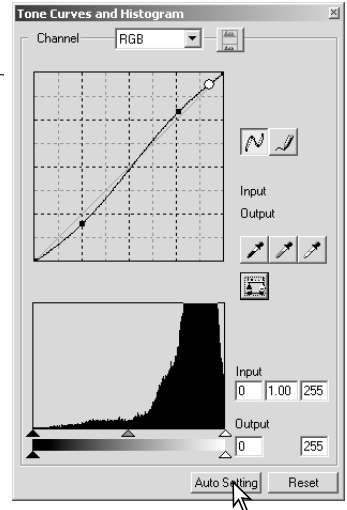


Calibrate the image following the steps in white, black, and gray point corrections section.

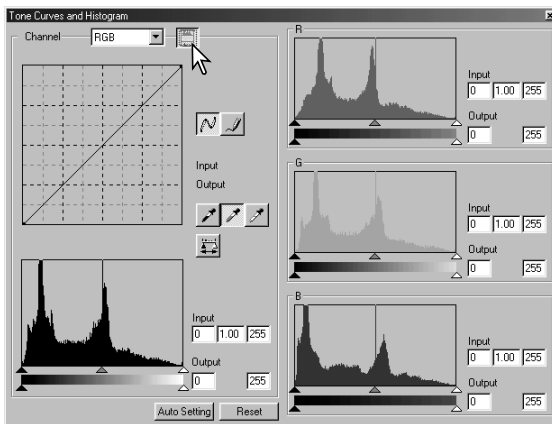
Tone curve / histogram auto setting

Click the auto-setting button.

- The change is immediately reflected in the displayed image.
- The auto-setting function automatically adjusts the tone curve and histogram to optimise image data. The darkest pixels in the image are set to a black level for 0, the brightest pixels are set to a white level of 255, and the rest of the pixels are distributed between them equally. To view the change in the histogram, press the apply button.
- Click the reset button to cancel the auto setting.



Displaying the color histograms

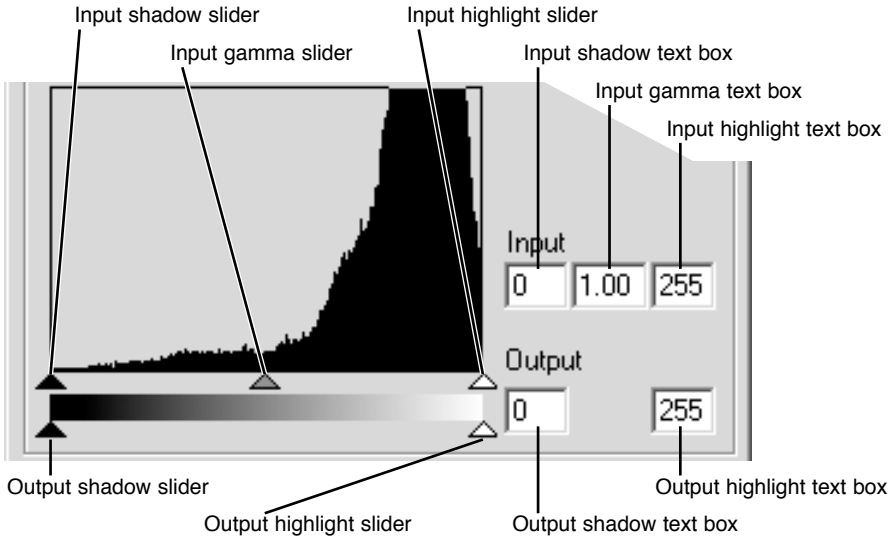


Click the color-histogram button to view the red, green, and blue histograms.

Click the histogram RGB display button again to close the color histogram display.

Histogram corrections

The histogram indicates the distribution of pixels with specific brightness and color values of the displayed image. Using the histogram can optimise the output of the image data. Changes made with the histogram are also displayed on the tone curve.



The color histograms can be displayed with the channel list box or with keyboard shortcuts. While holding the shift key (Windows) or command key (Macintosh), press “1” to display the red channel, “2” to display the green channel, “3” to display the blue channel, or “0” (zero) to display the RGB channel.

The highlight level, shadow level, and gamma can be set manually. The histogram can be used to optimise the distribution of the pixels in the image. All the levels on the histogram are displayed numerically to the right of the sliders. These numbers can be changed with the keyboard.

The gamma slider defines the mid-tones of the image. Dragging the gamma slider to the right will darken the image, and dragging it to the left will brighten it. Similar to the tone-curve correction described on page 34, the gamma slider allows the brightness of the image to be adjusted without losing image information.

The input highlight slider sets the white level. As the slider is moved to the left, an apparent increase in contrast can be seen in the displayed image. All pixels to the right of the slider are set to 255 and any image detail they may contain will be lost. This can be an important tool for improving copy images of text on a white background. Uneven illumination, or faded or stained paper can be distracting when copying text or line art. By adjusting the white level, the imperfections of the white background can be eliminated leaving only the darker text visible.

The input shadow slider sets the black level. As the slider is moved to the right, an apparent increase in contrast can be seen in the displayed image. All pixels to the left of the slider are set to 0 and any image detail they may contain will be lost.

The black and white output levels can be adjusted. By moving the output highlight and shadow sliders, the contrast of the image can be reduced.

Hue, saturation, and lightness palette

This palette adjusts the image in reference to the HSB color model. These controls can be used to manipulate the color image rather than producing a realistic representation.

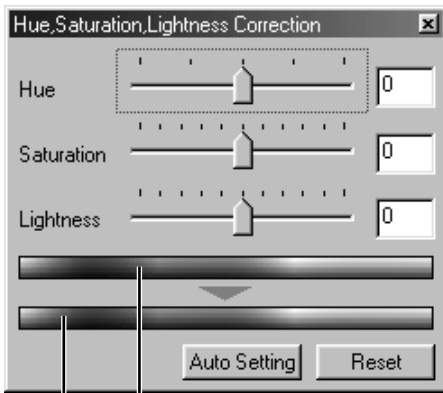
The HSB color model defines color based upon human perception rather than photographic processes. Hue refers to each separate color in the model. Saturation is how vivid each color is. Lightness describes how bright or dark a color is in the color space.

The hue control is not a color balancing tool. It is a creative tool. When changing hue in the palette, each color is assigned a new hue depending on the degree of rotation through the color space. For example, a very simple color space could have three colors: red, green, and blue. I have a red barn next to a green tree with a blue sky. Now I rotate the my image in the color space; the colors are reassigned a new hue based on the position - the barn is green, the tree is blue, and the sky is red. The HSB color space is similar, but with many more hues.

Unlike the brightness control in the brightness, contrast, color balance palette, the lightness control does not change the apparent density of the colors equally. For example, with an extreme increase in lightness, blue will not appear as light as yellow.



Click the hue, saturation, and lightness button to open the palette.



Original color space

Current color space

Drag the hue, saturation, or lightness slider, or enter specific values in the corresponding text box to make corrections.

- Dragging each slider to the right or inputting a positive number in the text box increases the saturation, and lightness. The hue slider rotates the colors in the image through the color space; the maximum position to the right (180°) is the same as the maximum position to the left (-180°).
- Two color-sample bars are displayed at the bottom of the palette. The top sample indicates the color space of the original image. The bottom sample displays the relative changes to the color space.
- Click the reset button to cancel any changes.
- Changes will be reflected in the displayed image.

Auto-setting button

Clicking the auto-setting button adjusts the saturation automatically without affecting the hue or lightness.

- Click the reset button to cancel any changes.

Comparing pre- and post correction images

Clicking the comparison display button divides the image display area in two. The original image is on the left and the corrected images is on the right. Using the fit-to-window button automatically resizes both images to fit the display area. To display the corrected image only, click the comparison display button again.

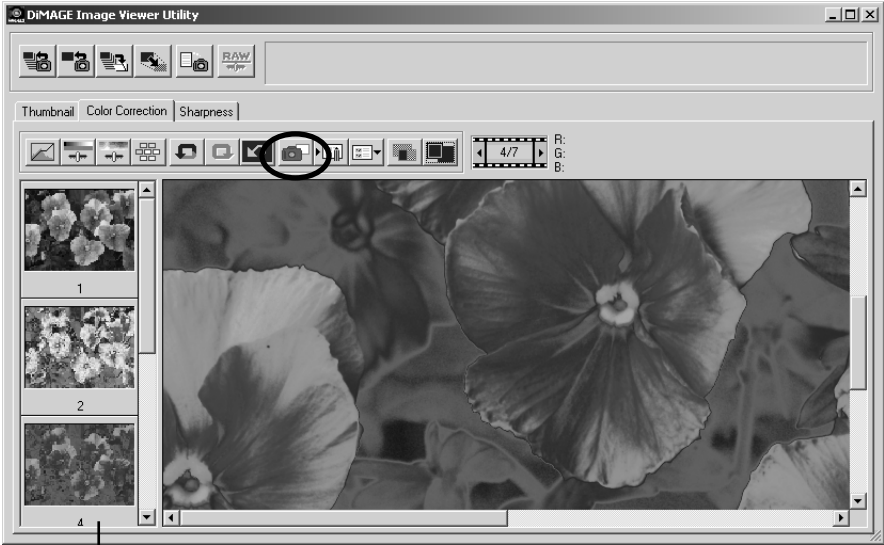


Original image

Corrected image

Tracking image corrections - snapshot button

Image corrections can be stored temporarily as a thumbnail next to the displayed image. Simply click the snapshot button to create a thumbnail with the current image corrections.



Snapshot display area

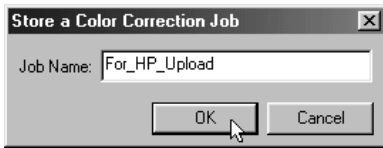
To return to a previous image correction, click on the corresponding thumbnail. The thumbnail image will replace the displayed image. The number of snapshots that can be made is only limited by the computer memory. To delete a snapshot, click on the thumbnail and press the keyboard delete key.

Saving image corrections

All corrections applied to an image can be saved as a color-correction Job. The Job can be loaded into the utility at any time and applied to different images. This is a time-saving function when a large number of images need to be processed with the same correction settings.

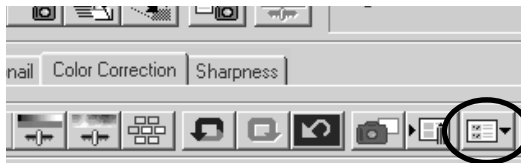


Click the save color-correction Job button to save the current image-correction settings.



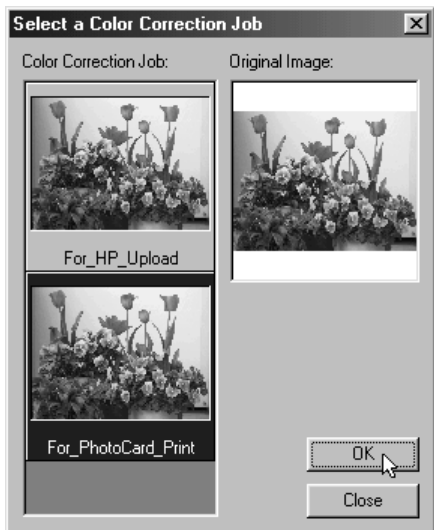
Enter the Job name. Click "OK" to save the settings.

Loading color-correction Jobs



Display the image to be corrected in the color-correction tab.

Click the load color-correction-Job button to import a color-correction Job.

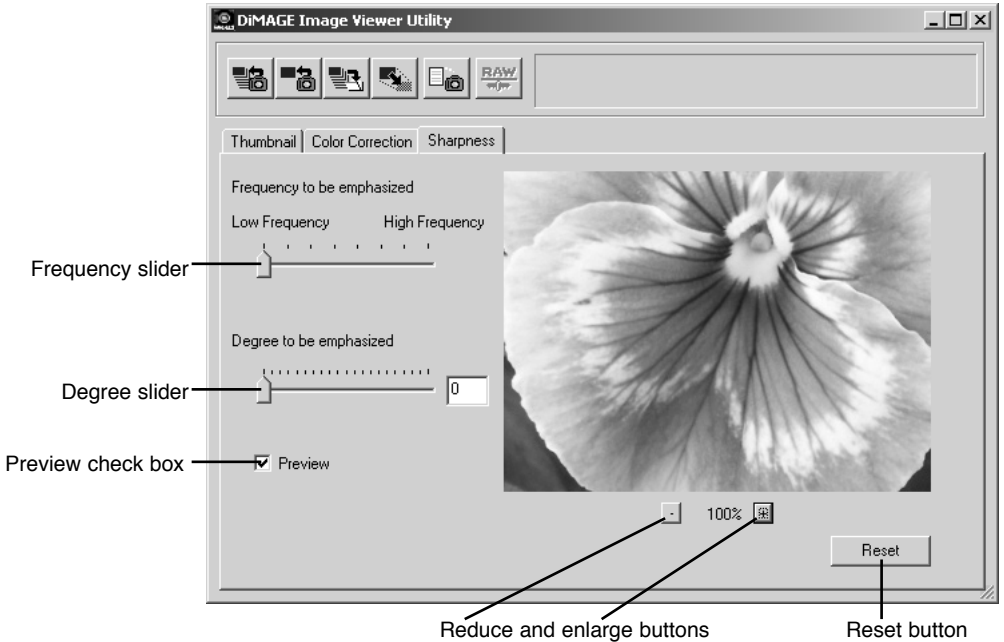


Click on the color-correction Job thumbnail to select it. Click "OK" to apply it to the displayed image.

- Jobs are loaded into the snapshot display area. Multiple Jobs can be loaded.

Sharpness

The apparent sharpness of the image can be increased. Sharpness control is very subtle, but can have a powerful affect on overall image quality. Clicking the sharpness tab will display the image selected in the thumbnail or color-correction window.



The preview image can be scrolled using the mouse. Place the mouse pointer over the image area; it will change to the grab tool. Click and drag the image to scroll.

Frequency slider - affects the sharpness of image details. The high frequency setting maximizes resolution, and the low-frequency setting maximizes contrast. The optimal frequency setting will vary from image to image. It is recommended to view the image at various magnifications to judge the results.



High-frequency setting



Low-frequency setting

Degree slider - controls the contrast of the set frequency. The degree of sharpness can be set between 0 and 2 in 0.1 increments. The higher the value, the greater the contrast; compare the examples above, which are at the maximum setting, with the original image on the facing page. The degree of sharpness can also be entered in the text box next to the slider.

Preview check box - displays the effect of the sharpness controls on the preview image.

Reduce and enlarge button - to adjust the size of the preview image. The preview image can be displayed at 100%, 66.7%, 50%, 33.3%, 25%, and 16.7%.

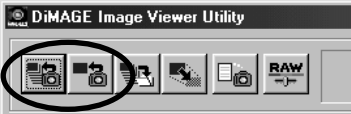
Reset button - resets all changes made to the image.

COLOR MATCHING

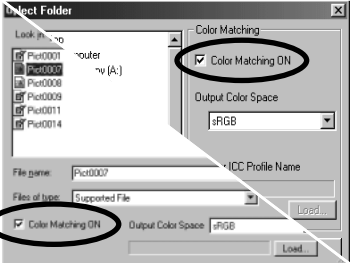
Each output device (monitor or printer) defines color and contrast differently. To ensure accurate reproduction, the output color space must be defined. Color matching is used for professional color management. It is not needed for normal personal use.

The DiMAGE Image Viewer utility color-matching function matches the loaded image's color with specified color spaces. The color matching system can use the monitor's ICC profile to display the image as accurately as possible. Color matching is activated in the open dialog box.

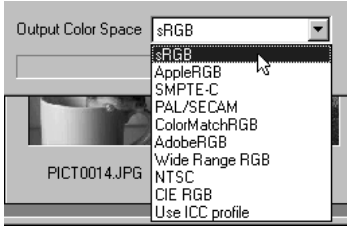
Setting the output color space



Click one of the load-images buttons to display the open or select dialog box.



In the dialog box, click the color-matching-on check box.



Select the output color space from the drop-down list.
• See the following page for descriptions about standard color spaces.

Load the image file(s) to set the color space.

The choice of output color space is dependent on how the image will be reproduced.

sRGB - the color space promoted by Hewlett Packard and Microsoft. Since it reflects the average PC monitor characteristics, it is widely used around the world, and is considered to be the standard for multi-media and Internet usage. sRGB is not suitable for professional prepress applications because of its narrow reproduction range.

Apple RGB - widely used in DTP. It is the standard color space in many common graphic arts and design applications: Adobe Illustrator, Photoshop, etc.

SMPTE-C - the current television broadcasting standard used in the United States.

PAL/SECAM - the current television broadcasting standard used in Europe.

ColorMatch RGB - this standard has a wide color space and is ideal for use with Radius Press View monitors, which are commonly used in prepress production.

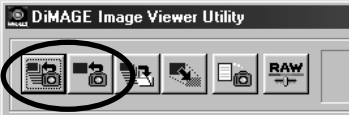
Adobe RGB - this color space is wider than ColorMatch RGB. The extensive color range makes it ideal for prepress use. However, the range is so great that it includes many colors that cannot be reproduced with a four-color printing process.

Wide Range RGB - utilizing the color coordinates of the spectrum, this standard offers an extreme range of colors. Many of the colors that can be generated cannot be reproduced on standard computer monitors or by printing technology.

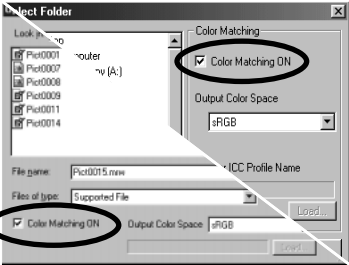
NTSC - the current television broadcasting standard used in Japan.

CIE RGB - this color space is defined by the CIE.

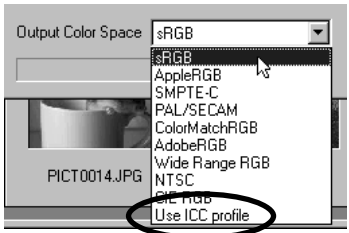
Using the monitor's ICC profile



Click one of the load-images buttons to display the open or select dialog box.



In the dialog box, click the color-matching-on check box.



Select the use-ICC-profile option from the drop-down list. Click the load button.

Open the ICC profile for the monitor in use.

- The ICC profiles can be found at the following locations:
 - Windows 95/98/98SE/Me: [Windows] folder > [System] folder > [Color] folder.
 - Windows NT4.0: [WINNT] folder > [System32] folder > [Color] folder
 - Windows 2000/XP: [WINNT] folder > [System32] folder > [spool] folder > [drivers] folder > [color] folder
 - Macintosh: [System folder] > [ColorSync Profile folder]

Load the image file(s) to set the color space.

ICC profiles for specific monitors are available from the manufacturer. These may be downloaded from the manufacturer's web site. See the monitor's instruction manual on how to install the ICC profile.

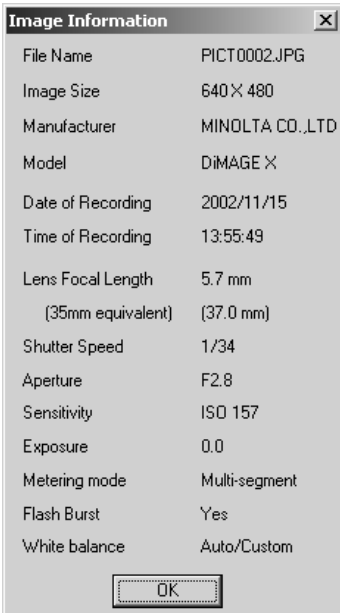
Images loaded with color matching on have the selected color space or ICC profile attached to the image files. If those files are opened in an application with color-matching functions (e.g. Adobe Photoshop version 6.0), the embedded color profile is transferred to the application.

Displaying the recording data of an image



With an image selected in the thumbnail or color correction window, click the image-information button.

- If more than one thumbnail image is selected, one window for each image will open.

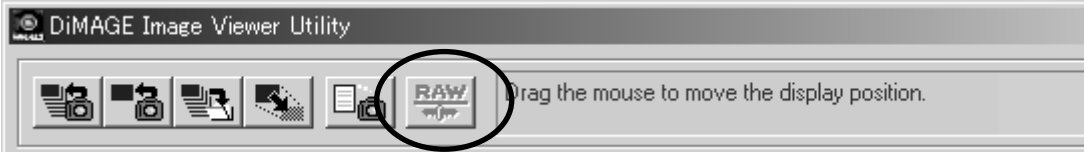


To close the window, click "OK."

- The information displayed on the window may vary between camera models.

Recording data is contained in an exif tag attached to the image file. If an image is opened in a image-processing application that does not support exif tag data (e.g. Adobe Photoshop), and then the image is saved overwriting the original data, the exif tag information will be erased. When using software other than the DiMAGE Image Viewer Utility, always rename the image file to protect the exif tag data.

About the RAW button



Certain digital cameras, such as the DiMAGE 7 or DiMAGE 5, use a special file format called RAW. This file can only be read and processed by the DiMAGE Image Viewer software. The button is only active when a RAW file is loaded into the utility.

When saved, a RAW file can have a bit length of 24bit or 48bit. Once saved as 24 bit, it cannot be saved as a 48-bit file. This option is deselected in the save dialog box for all other types of image files.

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