

# WinJPEG Index

## Commands

[File Menu](#)

[Edit Menu](#)

[Options Menu](#)

## Reference Information

[WinJPEG Features](#)

[Notes about OS/2 2.0](#)

[JPEG](#)

[Converting File Formats with WinJPEG](#)

[Image File Formats](#)

[Drag-drop Support](#)

[How to Register](#)

[Reporting Bugs](#)

[License Agreement](#)

[Disclaimer](#)

[Acknowledgments](#)

## **File Menu**

The File menu includes commands that enable you to open and save files, to batch convert files to JPEG, and to display multiple images in a selected order.

For more information, select the File menu command name.

Open

Save

Save All Options

Delete

Batch Compression

Slideshow

Exit

## **Edit Menu**

The Edit menu includes commands that enable you to transfer images to and from the clipboard, to change the color components of an image, and to manipulate the image.

For more information, select the Edit menu command name.

Copy

Paste

Crop

HSV Adjustment

Color Balance

Contrast Enhancement

Rotate

Flip Horizontal

Flip Vertical

Resize

## Options Menu

The Options menu includes commands that let you determine how other commands operate. The settings for the options can be saved with the Save All Options command.

For more information, select the Options menu command name.

Full Palette

8-Bit Bitmap

Dither24to15

Auto-resize

Show Scroll Bars

Move Window after Load

Maximum Fit after Load

Suppress Data Loss Warning

JPEG Options

Memory Options

Slideshow Options

## **File Open command (File Menu)**

Select the name of a file to display and the file format which is the JPEG File Interchange Format (JFIF), TIFF, GIF 87a/89a, uncompressed Targa, PCX, or Windows BMP. Selecting the **JPEG Preview** file type will display a JPEG image as a grayscale image. All 24-bits per pixel-images are loaded into either an 8-bit or 24-bit bitmap which is determined by the 8-bit Bitmap option. Other bits per pixel-formats are automatically stored in an 8-bit bitmap.

## **File Save command (File Menu)**

Select the name of the output file and the output format, which is the JPEG File Interchange Format(JFIF), TIFF, GIF 87a, uncompressed Targa, PCX, Windows BMP or OS/2 BMP. When you save an image, the bits per pixel of the output file is the same as the bits per pixel of bitmap that is currently displayed unless the bits per pixel of the output format is fixed (e.g., JPEG or GIF).

## **Save All Options command (File Menu)**

This will save all the WinJPEG options to a file named "winjpeg.sav" in the same directory as the WinJPEG executable. When WinJPEG is initially loaded, the options will be loaded if "winjpeg.sav" exists.

## **Delete command (File Menu)**

This menu command lets you delete the file containing the currently displayed image. WinJPEG will prompt you for confirmation before deleting the file.

## **Batch Compression command (File Menu)**

Select GIF, TIFF, and TARGA files to compress to JPEG format with the options specified in the JPEG Options dialog. The list box on the left displays the files in the current path and the list box on the right displays a list of files to be converted. To add file(s) to the latter box, select the file(s) you want to convert and press the **Add** button.

If you decide to abort the conversion while it is in the process of converting, click on the window with the left mouse button, click on the "Yes" button in the confirmation dialog, and the conversion will halt after the current file is completed.

The output file(s) will have the same name as the input file(s) except that they will have a ".jpg" extension. Also, the output file(s) will be placed in the same directory path in which the input file(s) were located.

See also [JPEG Options](#).

## Slideshow command (File Menu)

Select the JPEG, TIFF, GIF, Targa, PCX, and Windows BMP files to display in a slideshow. The order in which you add the files will be the order in which they are displayed.

After a picture is loaded and displayed, if **Automatic Slide Advancement** is selected, there will be a user-selected delay before the next picture is loaded. To advance to the next picture before the delay has elapsed, click on the window with the right mouse button. If **Manual Slide Advancement** is selected, WinJPEG will wait until you click with the right mouse button before advancing to the next picture.

If you would like the slideshow to continue from the beginning of the list after the last picture is displayed, check off the **Cycle Slideshow** menu option.

To abort the slideshow, click on the window with the left mouse button, click on the "Yes" button in the confirmation dialog, and the slideshow will stop after the currently loading picture is displayed.

See also [Slideshow Options](#).

## **Exit command (File Menu)**

Exit from WinJPEG. While WinJPEG is compressing/decompressing an image, you can exit by using the Close command in the system menu.

## **Copy command (Edit Menu)**

If a region of the image is selected (see [Selecting a Region to Crop or to Copy](#)), copy that region into the clipboard. Otherwise, copy the entire image into the clipboard. WinJPEG posts the image in Windows bitmap and Device-Independent Bitmap(DIB) formats.

## **Paste command (Edit Menu)**

Paste an image from the clipboard. The clipboard must contain either a Windows bitmap or a Device-Independent Bitmap(DIB).

## **Crop command (Edit Menu)**

If a region of the image is selected (see [Selecting a Region to Crop or to Copy](#)), keep that region and discard the image outside of the selected region.

## **HSV Adjustment command (Edit Menu)**

Use the scroll bars to adjust the amount of hue, saturation, and value/brightness in an image. A value of 0 on the scroll bar means that there is no change in the corresponding color component. When the value is increased or decreased, the color component is increased or decreased, respectively. Warning: the HSV calculations are very slow in 24-bit mode.

## **Color Balance command (Edit Menu)**

Use the scroll bars to adjust the amount of red, green, and blue in an image. A value of 0 on the scroll bar means that there is no change in the corresponding color component. When the value is increased or decreased, the color component is increased or decreased, respectively.

## **Contrast Enhancement command (Edit Menu)**

Use the scroll bar to adjust the amount of contrast in an image. A value of 0 on the scroll bar means that there is no change in the contrast. When the value is increased or decreased, the contrast is increased or decreased, respectively.

## **Rotate command (Edit Menu)**

Rotate the image clockwise by 90 degrees.

## **Flip Horizontal command (Edit Menu)**

Flip the image around the vertical axis.

## **Flip Vertical command (Edit Menu)**

Flip the image around the horizontal axis.

## Resize command (Edit Menu)

Change the spatial resolution of the displayed image. Common sizes such as **640x680**, **800x600**, **1024x768**, and **1280x1024** can be easily selected. The **Maximize Fit on Desktop** option will resize the image into the largest possible window that will fit on the desktop while keeping the aspect ratio, the ratio between the original width and height. Also, a custom size can be manually entered. If **Keep Aspect Ratio** is enabled, only one dimension needs to be entered because the other one is automatically changed to maintain the aspect ratio.

## **Full Palette command (Options Menu)**

Windows normally reserves 19 system colors for painting display elements like the background color, window frame color, etc. If this option is checked and you are using a 256-color display mode, these colors are no longer reserved by the system and the image is displayed with the image's full palette of colors. However, the system colors will look incorrect until you turn this option off or exit WinJPEG.

If the option is off, Windows attempts to match system colors to colors in the image's palette before reserving the colors it needs. In other words, if it can't find the system colors in the image's palette, it will replace image palette entries with system colors. Up to 19 colors in the image could be replaced by the system colors.

The Full Palette option is useful in 256-color mode only.

## **8-bit Bitmap command (Options Menu)**

When you load a JPEG, 24-bit TIFF, 24-bit Targa, 24-bit PCX, or 24-bit Windows BMP image with this menu item checked, WinJPEG will quantize the number of colors to 256 before displaying the image. If this menu item is unchecked, the image will be loaded into a 24-bit bitmap with no quantization.

## **Auto-resize command (Options Menu)**

When this option is checked, WinJPEG will automatically resize the window so that the image will fit just inside the window. When an image is initially loaded, the window size is changed so that the largest possible portion of the image is displayed. When you change the window size so that it is larger than the image size, the window will be resized so that it just fits around the image. Also, scroll bar(s) are activated if they are needed.

## **Dither24to15 command (Options Menu)**

This option is available only if you are using a 32k color or 64k color display mode. When it is checked and the 8-Bit Bitmap option is off, JPEG, TARGA, or 24-bit Windows BMP images will be dithered to 15-bits per pixel so that they can be displayed properly.

## **Show Scroll Bars command (Options Menu)**

This option is available only if auto-resize is off. It lets you choose whether or not the scroll bars are activated.

## **Move Window after Load command (Options Menu)**

If this option is checked, the WinJPEG window is moved to the upper left-hand corner of the desktop after an image is loaded.

## **Maximum Fit after Load command (Options Menu)**

If this option is checked, an image is resized after it is loaded. The new size is the maximum window size that can fit on the desktop without scrollbars while keeping the image's aspect ratio. The resize function is equivalent to the **Maximum Fit on Desktop** choice in the Resize dialog.

This option changes the size of an image and it should not be used in image conversion if you want to preserve the original image size.

## **Suppress Data Loss Warning command (Options Menu)**

If this option is checked, WinJPEG does not warn you when you save an image that has lost data because of quantization or dithering.

## JPEG Options command (Options Menu)

**2-pass**(Heckbert) quantization produces better looking output than **1-pass** quantization and it is slower. Also, **2-pass** quantization uses more memory so it may be even slower because WinJPEG will swap to hard disk when it runs out of physical memory. The output of **1-pass** generally looks more grainy.

Dithering uses available colors in a palette to simulate additional colors. The dithering method that WinJPEG uses is called **Floyd-Steinberg Dithering**. Dithering is useful when quantizing to 256 colors or less but it is not needed for a true-color (24-bit) display. You may want to turn off dithering since it sometimes causes a grainy output image.

The **Quality Factor**, an integer between 0 and 100 inclusive, determines the tradeoff between the output file size and the output image quality. If you choose a high quality factor, the image quality will be high but the file size will be large. A lower quality setting will yield a smaller file at a cost of lower fidelity. Since the JPEG algorithm is lossy, a quality factor of 100 will not give you a losslessly compressed image.

The **Smoothing Factor**, also an integer between 0 and 100 inclusive, determines the degree of smoothing to apply to an image before compressing that image with JPEG. The higher you set the factor, the higher the degree of smoothing that is applied. A smoothing factor of 0 means that no smoothing is performed. Smoothing removes noise introduced when an image is dithered, and, in turn, smoothing produces a smaller JPEG file. It should be used for only dithered images, like photographic GIF pictures. Generally, a factor between 10 and 50 removes the dithering noise from an image.

**Entropy Optimization** produces a smaller JPEG file but it takes more time to encode the image.

## Memory Options command (Options Menu)

When WinJPEG needs more memory, it can use virtual memory, selected by the **Available Memory** button, or it can use temporary files, selected by the **Temporary File** button. If the former option is selected and WinJPEG runs out of virtual memory, temporary files will automatically be used.

Temporary files are created in the directory chosen by the user and they are deleted when WinJPEG is done with the memory or when the user aborts decompression/compression of an image by closing the program.

In general, the **Available Memory** should be selected when your system has at least 8 Mb of RAM, and the **Temporary File** should be selected when you have little RAM or you are multitasking memory-intensive programs.

## Slideshow Options command (Options Menu)

When a slideshow is running, the **Cycle Slideshow** option determines whether or not a list of images are continuously displayed in a cycle. If this option is on, the slideshow returns back to the first picture after the last one is displayed and continues to display all the images in a selected list until you abort the slideshow.

The **Slide Advancement** options determine how to advance to the next image in a slideshow. In **Manual** mode, WinJPEG will wait until you click with the right mouse button before advancing to the next picture. In **Automatic** mode, there will be a user-selected time delay before the next picture is loaded. To advance to the next picture before the delay has elapsed, click on the window with the right mouse button. The **Delay** can be set to a value between 0 and 60 seconds.

## **JPEG**

Joint Photographic Experts Group (JPEG) refers to a still-picture compression standard that specifies several modes of operation. The mode used by the Independent JPEG Group's (IJPEG) software, which is incorporated into WinJPEG, is sequential buildup; in this mode, each component of an image is encoded in a left-to-right and top-to-bottom scan. Sequential mode is lossy, which means that when you compress an image, you will lose information. That is, when you decode the compressed image, the decoded image will not exactly match the original. One reason that sequential mode JPEG is lossy is that the algorithm compresses an image by removing visually insignificant information, colors that the human eye cannot detect.

## **Image File Formats**

For more information, select an image file format.

[JPEG File Formats](#)

[Tagged Interchange File Format \(TIFF\)](#)

[Graphics Interchange Format \(GIF\)](#)

[Targa](#)

[PCX](#)

[Windows BMP and OS/2 BMP](#)

## **JPEG File Formats**

The JPEG committee has not specified a standard file format, and consequently, many applications of the JPEG algorithm use their own proprietary format. WinJPEG uses the JPEG File Interchange Format(JFIF) which transports only pixel information. JFIF is supported by the IJPEG Group's software and other programs based on their code.

Handmade Software's GIF2JPG and Image Alchemy by default use a proprietary JPEG format that is not compatible with the JFIF standard. This proprietary format is not supported by WinJPEG. When you use GIF2JPG, remember to use the "-j" option to produce a JPEG file that is compatible with the JFIF standard and viewable with WinJPEG.

However, the GIF2JPG's "-j" option doesn't always produce a file in JFIF. If you have to use a DOS converter, we recommend that you use the IJPEG Group's cjpeg program. Otherwise, you should use WinJPEG's Batch Compression feature, which performs the same task as cjpeg except that only GIF and TARGA images are supported.

## **Tagged Interchange File Format (TIFF)**

WinJPEG supports a subset of the TIFF 6.0 specification. WinJPEG can view TIFF files stored with 1, 2, 4, 8, or 24 bits per pixel. WinJPEG can read TIFF images stored in strip format, in which the image is divided into horizontal strips of pixels, and tile format, in which an image is divided into rectangular grids of pixels. The compression modes LZW and Packbits can be read as well as uncompressed TIFF images.

WinJPEG can save uncompressed or LZW compressed TIFF files with 8 or 24 bits per pixel. TIFF files are saved in strip format.

## **Graphics Interchange Format (GIF)**

WinJPEG can view interlaced/non-interlaced GIF87a and GIF89a files and it can save non-interlaced GIF87a files. If a GIF89a file contains more than one image, it will display the first image in the file.

There are some GIF files that display with no errors under other image viewers but when they are viewed under WinJPEG, a "Premature End of GIF" error message is displayed. These GIF files are probably corrupt; the GIF decoder routines in WinJPEG are stricter than those used in other viewers. If you want to avoid seeing this error message when you load a corrupt GIF, load it into WinJPEG, and overwrite the corrupt file by saving the displayed image as a GIF.

## **Targa**

WinJPEG can view uncompressed TARGA files stored with 8, 15, 16, 24, or 32 bits per pixel and it can save uncompressed TARGA files with 8 or 24 bits per pixel.

## **PCX**

WinJPEG can view PCX files stored with 1, 4, 8, or 24 bits per pixel. If a 1, 4, or 8 bits per pixel PCX file does not have a valid palette, WinJPEG will use a default palette. It can save PCX Version 5.0 files with 8 or 24 bits per pixel.

## **Windows BMP and OS/2 BMP**

WinJPEG can view Windows BMP files stored with 1, 4, 8, or 24 bits per pixel and can view 4 or 8-bit Windows BMP files that are run-length encoded(RLE). It can save uncompressed Windows or OS/2 BMP files in 8 or 24 bits per pixel and can save 8-bit Windows BMP files with RLE.

Note that some graphics viewers use the file extension ".RLE" for run-length encoded Windows BMP files. WinJPEG uses the ".BMP" extension as a default for such files.

## How to Register

If you use WinJPEG for more than 14 days, you are expected to register WinJPEG. When you register, you will receive the latest 286 and 386 versions of WinJPEG, a user manual, and a collection of JPEG images (we will put as many as we can fit on 2 720k 3 1/2" floppies, on 1 1.44M 3 1/2" floppy, or on 4 360k 5 1/4" floppies). Also, the registered version does not have the reminder-to-register screen at the start.

The registration fee is only \$20. MA residents, add 5% sales tax to the registration fee. US residents, add \$3 for shipping and handling; non-US residents, add \$8 for shipping and handling. If you want WinJPEG e-mailed to your account instead of having it physically mailed to you, there is no extra shipping charge.

Registered users of WinJPEG can purchase the latest version for \$5. Shipping fees described above apply to these updates as well. Updates are available when you see a new shareware version.

For e-mail registrations, you need to use a program called "uudecode" to decode the uuencoded file that we e-mail to you. For your information, a uuencoded file is a binary file that is converted to text by a program called "uuencode". If your mail system rejects large messages, we will split the uuencoded file into smaller parts before mailing the parts to you, and you will need to edit the messages with a text editor before you can decode them. Compuserve, for example, does not permit large e-mail messages. Also, the uuencoded file is rather large; it is greater than 500k for WinJPEG v.2.2. Compuserve users may find it less expensive to receive WinJPEG via U.S. Mail.

Registrations with the incorrect fee or with non-US currency will be returned.

To register, complete the order form and send a check in US funds to:

Norman Yee  
58 Chandler St.  
Boston, MA 02116

## **Reporting Bugs**

If you find a bug in WinJPEG, we would appreciate it if you would inform us of the bug through one of our e-mail accounts:

|  |  |
|--|--|
| Norman Yee   | Ken Yee  |
| <a href="mailto:nyee@osiris.ee.tufts.edu">nyee@osiris.ee.tufts.edu</a> | <a href="mailto:kenyee@ksr.com">kenyee@ksr.com</a> |

When you send us a bug report, include a description of the procedure for reproducing the bug and a description of your system configuration(hardware and software).

## **License Agreement (applicable to registered users)**

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TIFF support in WinJPEG is based in part on Sam Leffler's TIFF library.

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## WinJPEG Features

WinJPEG v.2.2 is a shareware image viewer with image processing and conversion capabilities for Microsoft Windows 3.x. It has the following features:

- display JPEG, TIFF, Targa, GIF, PCX, or Windows BMP images
- export an image to JPEG, TIFF, Targa, GIF, PCX, Windows BMP, or OS/2 BMP
- display of 24-bit images with 1-pass or 2-pass(for JPEG only) quantization and Floyd-Steinberg dithering
- display an image with its full palette
- color balance: red, green, and blue adjustment
- hue, saturation, and brightness adjustment
- image rotation, vertical or horizontal flip, image resizing, and image cropping
- batch file compression of GIF or TARGA files to JPEG File Interchange Format (JFIF)
- slideshow: display selected files sequentially with a cycle option
- copy a portion of or the entire image to the clipboard, paste an image from the clipboard
- support for Windows 3.1 features like drag-drop and common dialogs
- support for file name extension association and starting a slideshow from the command line

There are two versions of WinJPEG: a 386 version for 386's or better and a 286 one for 286's or better. The shareware version is a fully functional 286 version. The 386 version can be obtained by registering WinJPEG. See [How to Register](#) for more information.

## **Drag-drop Support**

If you are using Windows 3.1, when you drag one or more files from File Manager to an open WinJPEG and drop them there, WinJPEG will automatically enter the slideshow mode and display those files in the order in which they are listed in File Manager. There is a delay, which can be set in the Slideshow dialog box, between displayed pictures.

## **Selecting a Region to Copy or to Crop**

To select a region of the image, click on the image with the left mouse button. While holding down that button, move your mouse until the rectangle surrounds the desired region, and then release the mouse button. The dimensions of the selected region are displayed in the center of the indicated region.

## Converting File Formats with WinJPEG

Because most photographic images with 2 colors(monochrome) or 16 colors do not have decent fidelity, WinJPEG does not fully support these color modes. If you are running Microsoft Windows in a display mode with less than 256 colors, WinJPEG will warn you and advise you to use a display mode that supports at least 256 colors.

On the basis of the display mode, the image format, and WinJPEG options, WinJPEG will quantize or dither an image before displaying it. Regardless of these factors, when WinJPEG loads images stored in 1 or 4 bits per pixel, it will losslessly convert them to an 8 bits per pixel format.

If you are using a 16 color display driver and you enable the "8-bit Bitmap" option, WinJPEG will quantize an image to 16 colors in some cases. We recommend that you do not use this color mode to convert images from one format to another.

In 256 color video mode or better, with the "8-bit Bitmap" option enabled, all 24-bit images(i.e. 24 bits per pixel) are quantized to 256 colors before displaying them. With this option enabled, you can convert a 24-bit image to an 8-bit one. 1, 4, and 8-bit images are automatically stored in 8-bit format with no data loss and displayed. If you are converting a 24-bit image to a 24-bit output format in this color mode, you should turn off the "8-bit Bitmap" option before loading that image.

With a 32k or 64k color Windows video driver, the "Dither24to15" option dithers a 24-bit image to 32k colors for display; it should not be enabled when you are performing file format conversion.

The preceding conversion restrictions do not apply when using Batch Compression to compress images to JPEG format. They only apply when the Save option is used from the menu.

When WinJPEG quantizes or dithers an image for display, information in that image is lost and WinJPEG will warn you when you try to save that image.

## **Notes about OS/2 2.0**

When you run WinJPEG under OS/2 2.0, WinJPEG cannot allocate more than 1 Mb of contiguous memory at a time. Because of this limitation in OS/2 2.0, WinJPEG cannot allocate enough contiguous memory if the image is too large. In addition, this limitation will cause the JPEG code to use temporary files most of the time. OS/2 2.1 allows Windows applications to allocate more than 1 Mb of contiguous memory and it fixes this problem.

