

LView 2.0

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Keyboard Accelerator Keys

LView uses keyboard accelerator keys to complement and speedup common operations. When a menu item can also be accessed via a keyboard accelerator, the corresponding key combination will be shown after the menu item text. The following is a list of all accelerator keys implemented on this version:

Window client area scrolling (also active while defining a region):

HOME: scrolls one page to the left

END: scrolls one page to the right

PGUP: scrolls one page up

PGDN: scrolls one page down

UP ARROW: scrolls one line up

DOWN ARROW: scrolls one line down

LEFT ARROW: scrolls one row to the left

RIGHT ARROW: scrolls one row to the right

Common functions, also available in menu items:

SHIFT+DEL: same as Edit/Cut

CTR+INS: same as Edit/Copy

SHIFT+INS: same as Edit/Paste

CTR+DEL: same as Edit/Delete

CTR+S: same as Options/Place window at:/Same

CTR+HOME: same as Options/Place window at:/Left&Top

CTR+END: same as Options/Place window at:/Left&Bottom

CTR+PGUP: same as Options/Place window at:/Right&Top

CTR+PGDN: same as Options/Place window at:/Right&Bottom

CTR+C: same as Options/Place window at:/Center

CTR+R: same as Edit/Resize

File Menu

In the File Menu you will find commands to open/save/print an image file, possibly converting its format.

Open

Save

Save as

Delete

Print

Printer setup

Exit

File/Open command

This command will open a dialog window to specify the file name and directory for the image to be loaded. Loading attributes comply with the current setup. See the [Options Menu](#) for information.

File/Save command

This command saves the displayed image using the original file name. Attributes comply with the current setup. See the [Options Menu](#) for information.

File/Save as command

This command will open a dialog window to specify the new file name to which the image is to be saved. Image saving attributes comply with to the current setup. See the [Options Menu](#) for information.

File/Delete command

This command will delete the last filename successfully opened or saved. You will be prompted for a confirmation, before deletion takes place.

File/Print command

This command will print the image being displayed. Before printing, the user will be presented with a dialog for configuring printer options.

File/Printer setup command

This command will open a dialog for configuring system dependent printer characteristics. These options will be used on the Print command .

File/Exit command

This command will end LView 2.0. If an image is being loaded or saved when you select this command, LView will prompt you for a confirmation before exiting.

Edit Menu

In the Edit Menu you will find commands to access the clipboard, and change image size, position and other attributes.

Clipboard commands:

Cut
Copy
Paste
Delete

Size, Position commands

Crop
Resize
Flip Horizontal
Flip Vertical
Rotate ClockWise
Rot CounterClkWs

Image attribute commands.

GrayScale
Negative
HSV Adjust
YCbCr Adjust
Color Balance
Contrast Enhance
Gamma Correction
Interactive RGB

Edit/Cut command

Transfers the current image to the clipboard, and erases it from LView's window. This command is useful when Windows is low in memory. If you want to copy the image to the clipboard and retain it in LView, use the Copy command.

If you select this option after defining a rectangular area on the image, LView will copy only the selected rectangular area to the clipboard.

Edit/Copy command

Copies the current image to the clipboard. This command does not erase the image from LView's window. If Windows is low in memory, try the Cut command.

If you select this option after defining a rectangular area on the image, LView will copy only the selected rectangular area to the clipboard.

Edit/Paste command

Copies an image from the clipboard to LView's window.

Edit/Delete command

Deletes the image from LView's window. This is useful to free memory without exiting LView.

Edit/Crop command

Crops the image to the defined rectangle. Only the region inside the rectangle is kept.

To define a rectangle, click the left mouse button, and drag the mouse without releasing it. When you are done, release the button. While defining the rectangle, its dimensions will appear in the window's caption bar. If the image is larger than the window, moving the mouse outside the window will make it scroll. Clicking the right mouse button while scrolling (without releasing the left button) will provoke a "fast scroll" to the end of the image.

Cropping images is specially useful before converting GIF files to JPEG format. Always crop the border around the image, to improve both compression quality and ratio.

Edit/Flip Horizontal command

Flips (mirrors) the image horizontally.

Edit/Flip Vertical command

Flips (mirrors) the image vertically.

Edit/Rotate ClockWise command

Rotates the image clockwise, transforming rows into columns and vice-versa.

Edit/Rot CounterClkWs command

Rotates the image counter clockwise, transforming rows into columns and vice-versa.

Edit/Resize dialog

Resizes the image to a new width and height.

You will set the new width and height in a dialog, where you can choose from a few predefined dimensions or define custom values for width and height. The "Fit to desktop" option will resize the image to the maximum dimensions the current graphics mode can exhibit without using scrollbars.

In the Resize dialog, keeping the "Preserve aspect ratio" box checked will make LView recalculate the specified width or height to preserve the image aspect ratio. The image's new width and height will not exceed the ones you choose. This will work for the predefined dimensions as well.

Edit/HSV Adjust command

This command will open a dialog window with scrollbars to edit HSV values for the image displayed. Moving the scrollbars will change each attribute. Lower/Upper values will Decrease/Increase the global amount of (H)ue, (S)aturation and (V)alue for the image.

During a display/edit session of an 8-bit image, moving the scrollbars will automatically alter the image. For 24-bit images, you will have to set a new value for each component, and then click on the "EXEC" button for the changes to take effect. As HSV editing is slower (but still feasible) for 24-bit images, making all the desired changes in one pass will cut down editing time.

All changes are performed on the original image. If you are satisfied with an HSV setting, click on the "UPDT" button, and the original image are updated to the current editing setting. If after further editing you click on the "CANCEL" button, you will exit the dialog, and the image will be reset to the last update saved. Click on "OK" to update the image to the current setting and exit the dialog.

Prop Sat and Prop Val:

These are two check boxes in the HSV dialog. When checked, they will make LView alter Saturation and Value attributes "proportionally". In short, this means that when you increase Saturation or Value attributes for the image, pixels low on the edited attribute will be more increased than pixels high on it. Conversely, when you decrease the attribute value for the image, pixels high on the attribute will be more decreased than pictures low on it. If you uncheck these boxes, Saturation/Value offsets apply equally to all pixels. Checking is useful, for instance, to brighten up the darker pixels of an image without making it's brighter pixels too bright. Note that extremely dark pixels may not brighten up consistently.

Edit/Contrast Enhance command

This command will open a dialog for the image. Increasing/Decreasing the Contrast value will increase/decrease the image's Contrast.

Edit/Color Balance command

This command will open a dialog window to edit the Red, Green and Blue attributes of the image. Increasing/Decreasing any of these attributes will increase/decrease the corresponding value for each pixel on the image. If you are viewing a 24-bit image, set new offset values for Red, Green and Blue and then press the "Exec" button to execute your choices. On a 256 color display, editions will be executed as soon as defined.

Edit/Gamma Correction

This command will open a dialog window to edit the gamma (brightness) value for the Red, Green and Blue attributes of the image. Increasing/Decreasing any of these attributes will increase/decrease the corresponding gamma value for each pixel on the image. Selecting "Lock RGB" will make LView apply the same gamma to Red, Green and Blue components. Unchecking "Lock RGB" will allow for individual gamma settings for Red, Green and Blue. If you are viewing a 24-bit image, and "Lock RGB" is not selected, set new gamma values for Red, Green and Blue and then press the "Exec" button to execute your choices. On a 256 color display, or if "Lock RGB" is unchecked, editions will be executed as soon as defined.

Edit/Negative

This command will make a "photographic negative" from the image being displayed. The user will be asked to confirm the selection, before the image is changed.

Edit/GrayScale

This command will transform the image being displayed to Grayscale representation. The user will be asked to confirm the selection, before the image is changed.

Edit/YCbCr Adjust command

This command will open a dialog window with scrollbars to edit Y, Cb and Cr values for the image displayed. Moving the scrollbars will change each attribute. Lower/Upper values will Decrease/Increase the global amount of Y, Cb and CR pixel components.

During a display/edit session of an 8-bit image, moving the scrollbars will automatically alter the image. For 24-bit images, you will have to set a new value for each component, and then click on the "EXEC" button for the changes to take effect. As YCbCr editing is slower (but still feasible) for 24-bit images, making all the desired changes in one pass will cut down editing time.

All changes are performed on the original image. If you are satisfied with an YCbCr setting, click on the "UPDT" button, and the original image are updated to the current editing setting. If after further editing you click on the "CANCEL" button, you will exit the dialog, and the image will be reset to the last update saved. Click on "OK" to update the image to the current setting and exit the dialog.

Edit/Interactive RGB

This command will open a dialog window for interactive RGB editing. The user will define the mapping for Red, Green and Blue transformations, either by "drawing" a curve on the mapping display, or by defining a Function (see [Calculator](#) for details on building function expressions).

Checking "Lock RGB" makes LView utilize the same mapping for Red, Green and Blue. Unchecking allows for individual mappings. The buttons "R", "G" and "B" select for which component the map being edited will affect.

The "Order" option can be set to "No Order", "Increasing Order" or "Decreasing Order". Selecting "No Order" will allow for any mapping to be defined. Selecting "Increasing Order" will restrict mappings to monotonically increasing curves. Conversely, selecting "Decreasing Order" will restrict mappings to monotonically decreasing curves. When using a "Function" to define a mapping, LView will set "Order" to "No Order".

The "Function" button will prompt the user for an expression for $f(x)$, where x represents either the Red, Green or Blue component, whichever is being currently edited. If "Lock RGB" is set, the user supplied expression will be used for all components. When writing an expression, keep in mind that color components range in the closed interval $[0..1]$. The expression will be evaluated for discrete values in the range $[0..1]$ for x , and the resulting $f(x)$ will be truncated to $[0..1]$. When writing expressions for mappings, use the predefined variable "x" as the current component value.

Function examples: The function "x" (identity function) will map components to their current values, making no change on the image. The function "x²" (x squared) will stretch the contrast for the component to which it is applied. Try the function " $0.5 - \cos(x \cdot \pi) / 2$ ", for a smooth contrast edition.

The "Exec" button makes LView perform the changes on the image being displayed, according to the defined mappings. The "Ok" button will end the dialog and perpetuate changes. The "Cancel" button will end the dialog and restore the image as it was before the dialog began.

Calculator

LView has an internal "calculator" to evaluate user defined expressions. In this version, 2.0, calculator usage is restricted to the Interactive RGB Command, but in future versions it's usage will be spread to other advanced image editing functions.

The calculator is a simple, yet powerfull expression interpreter. It works on C-like expressions and provides operators, built in "scientific functions" and the predefined constants: "e" (base for the Napierian logarithms) and "pi" (3.1415...).

Calculator functions (all trig functions work in radians):

logarithm of x on base b: $\text{Log}(x, b)$

Napierian logarithm of x: $\text{Ln}(x)$

Exponential of x (e^x): $\text{Exp}(x)$

Sine of x: $\text{Sin}(x)$

Cosine of x: $\text{Cos}(x)$

Tangent of x: $\text{Tan}(x)$

Cotangent of x ($1/\tan(x)$): $\text{Cotg}(x)$

Secant of x ($1/\cos(x)$): $\text{Sec}(x)$

Cosecant of x ($1/\sin(x)$): $\text{Cosec}(x)$

Arc for which tangent == x: $\text{Atan}(x)$

Arc for which sin == x: $\text{Asin}(x)$

Arc for which cos == x: $\text{Acos}(x)$

absolute (positive) value of x: $\text{Abs}(x)$

Hiperbolic sine of x: $\text{Sinh}(x)$

Hiperbolic cosine of x: $\text{Cosh}(x)$

Hiperbolic tangent of x: $\text{Tanh}(x)$

Calculator operators:

for add, subtract, multiply, divide, raise and module: $+ - * / \wedge \%$

for grouping: $()$

the usual comparison operators: $== != > >= < <=$

logical AND and OR: $\&\& \|\|$

C-like ternary operator: $?:$

Example expressions:

$x \wedge 0.8 + \text{sin}(x)$, will return x raised to 0.8 plus the sine of x

$x < 0.5 ? x : 0.5 - \text{cos}(x * \text{pi}) / 2$, will return x if $x < 0.5$, otherwise will return the result of $0.5 - \text{cos}(x * \text{pi}) / 2$.

$x == 0.5 \|\| (x < 0.25 \&\& x > 0.1) ? 1 : x$, will return x, except for values of x in the range (0.1 .. 0.25) or x equal to 0.5. For these latter values, the returned value will be 1.

Options Menu

In the Options Menu you will find commands to configure several aspects of LView's behavior. Your execution options can be saved, restored or reset default values.

8-bit Bitmap

Write 1&4 bit Bitmaps

Auto-resize

Show Scroll Bars

Use system colors

Fit on load

Place window at

Drop to

JPEG Options

Slideshow Options

Printer Options

Memory Options

Load all Options

Save all Options

Default Options

Options/Use system colors command

By default Windows reserves 20 colors from the 256 system palette entries for internal use. These colors are associated with menu items, captions, and other system display objects. Because of these reserved entries, called "static colors", when a program displays a 256 color image some of it's colors may be "remaped" to similar colors and not exhibited exactly as they are defined in the image logical palette.

A Windows application may reduce the number of static colors down to only 2 entries. The benefit is that the application will then be able to display it's images in a more accurate fashion. The drawback is that all other applications and system items will have their colors changed.

LView can optionally use static color entries, and does that in an ordered way. First, LView remaps to BLACK and WHITE the colors that previously used static entries (using the 2 remaining static entries). This way, they remain intelligible while system colors are changed. Then, LView only utilizes the static palette entries WHILE it is the active application. This means that whenever you select another window, or minimize LView, all colors will be remaped to their original values. When LView's window is made active again, the BLACK and WHITE mapping returns, and LView uses all possible colors for displaying the current image.

Using system palette entries is not always done in a proper way. When LView is activated, a verification is made to ensure that no other application has control over static color entries. If it is found that these entries were not released by other applications LView will avoid conflicts by NOT utilizing system static colors. A warning message will be displayed.

Using the scheme depicted above, two or more LView instances are able to run concurrently, even if they are all set to make use of static system colors.

The option "Use system colors:" will tell LView how to make use of static colors. It can be set to:

Never: Choosing this option will make LView preserve Windows system colors. In general this represents very little loss on image quality.

While focused: Choosing this option will make LView use all possible palette colors ONLY while LView is the active application. When you switch from LView to another application, all static system colors will be restored.

This option does not affect the exhibition of images in true color mode (that is, when 8-bit Bitmap is NOT selected), even when the image is defined in terms of palette colors, like GIF files. Also, this option does not affect image edition or compression quality.

Options/Fit on load command

LView can automatically fit loaded images to the desktop size. This is an operation equivalent to loading an image and then choosing the Edit/Resize resize command, and setting the image to "Fit the desktop" while preserving the aspect ratio. Except that this operation is automated, and works during ALL image loads, including SlideShow viewing, Batch compression, Batch printing and Clipboard pasting.

Fit on load can be set to one of the following:

Never: Choosing this option will make LView preserve the image size after loading it. In general, you should choose this option prior to batch compressing.

to Shrink: Choosing this option will make LView resize images that would otherwise exceed the desktop maximum dimensions.

to Enlarge: Choosing this option will make LView resize images that would otherwise be smaller than the desktop maximum dimensions.

Always: Choosing this option will make LView resize ALL images after loading.

Options/Place window at

LView can automatically position its window after loading images either from the disk or pasting from the clipboard.

Place window at can be set to one of the following:

Same: Choosing this option will make LView preserve the window position after loading images. This is the default option. It can also be set with the accelerator key CTR+S.

Left&Top: Choosing this option will make LView reposition its window to the upper left corner of the desktop after loading operations. It can also be set with the accelerator key CTR+HOME.

Left&Bottom: Choosing this option will make LView reposition its window to the lower left corner of the desktop after loading operations. It can also be set with the accelerator key CTR+END.

Right&Top: Choosing this option will make LView reposition its window to the upper right corner of the desktop after loading operations. It can also be set with the accelerator key CTR+PGUP.

Right&Bottom: Choosing this option will make LView reposition its window to the lower right corner of the desktop after loading operations. It can also be set with the accelerator key CTR+PGDN.

Center: Choosing this option will make LView reposition its window to the center of the desktop after loading operations. It can also be set with the accelerator key CTR+C.

Options/Memory Options command

This command will present a dialog for configuring memory usage. The user can choose to use only available main memory, or allow for temporary files creation, in a specified directory.

Options/Printer Options command

This command will present a dialog for configuring the image output to the printer. The user can select the proportion for image width and height (the default, 100% for Width and Height, will print the image as it is seen in the display). Printouts can also be sized to fit the printer page, by checking the "Fit to Printer Page" checkbox.

Options/8-bit Bitmap command

Regardless of their file format, images are translated into Windows Device Independent (DIB) format when loaded. LView can work with 8 and 24 DIBs. Set this option to make LView use an 8 bit DIB even when loading a 24 bit image. If your video card is limited to 256 colors, you can still view 24 bit images using 8 bit Bitmaps. When reading JPEG files (stored with 24-bit per pixel color information), LView will quantize the image according to the options you set in the JPEG Options dialog.

This option will be automatically selected if LView senses that your display can handle at most 8-bit pixel resolution (with palette references). If you then uncheck this option, LView will warn you that images will not be displayed correctly. Nevertheless, you should uncheck this option to perform format conversions, or image editions. This way, even if the image you see on the screen seems to have the "wrong" colors, image quality loss will be reduced in the process of saving edited/converted images.

Options/Show Scroll Bars command

Turning this option ON will make LView exhibit scrollbars whenever the image is larger than the IViews's client area.

Turning this option OFF will prevent LView from exhibiting scrollbars whenever the image is larger than the IViews's client area. Scrolling will still be possible by clicking the left mouse button and dragging it out of the client area.

Options/Auto-resize command

Turning this option ON will make LView try to resize it's window to the size of the image being displayed. If the image doesn't fit the maximum window size of your desktop, scrollbars may be added to LView's window. See [Show Scroll Bars](#) command for more details.

Turning this option OFF will prevent LView from changing its window size.

Options/Drop to command

LView can automatically load a group of files, either to show them as a slideshow, to compress them in batch to JPEG format or for printer output. Use Window's File Manager to select the files you wish to view, compress or print, and then drag them to LView's window. If you set this option to "Slideshow", LView will load the files and show them successively. If you set this option to "Compress", the files will be compressed using the current JPEG Options . Choosing "Print" will send each one to the printer. To interrupt batch compression, slideshow viewing or batch printing, click the right mouse button anywhere in LView's client area, or select the Menu Bar option.

Options/Slideshow Options dialog

In this dialog you can customize LView's Slideshow behavior. Pictures can be switched "automatic"ally (timed), or "manual"ly.

If you choose "automatic", LView will start to load the next Slide after the specified delay time.

If you choose "manual", LView will wait until you click the left mouse button anywhere inside LView's client area to begin loading the next Slide

If you check the "Cycle Slideshow" checkbox, LView will reload the first Slide after you view the last one, and restart the slideshow.

To interrupt the slideshow, click the right mouse button anywhere inside LView's client area. You will be prompted to confirm that you want to stop the slideshow.

Options/Load all Options command

Clicking on this menu item will make LView reload all options from disk. Use this command if you set options for a particular image, and want to reset your configuration without having to reset each altered option individually.

Options/Save all Options command

Most of the options set by menus and/or dialogs can be altered and the new setup can be saved. Use this menu item to save your customized LView setup.

Options/Default Options command

This menu item will restore LView's "factory defaults".

Options/Write 1&4 bit Bitmaps command

LView can process images of less than 16 colors. If you turn this option on, When you save a file to either Windows Bitmap or OS/2 Bitmap format, LView will, whenever possible, create 1 or 4 bit Bitmap files. If you turn this option off, only 8 or 24 bit Bitmap files will be written.

Options/JPEG Options dialog

In this dialog you will customize JPEG decompression (for loading images) and compression (for saving images and batch compression) parameters.

Decompression setup

If you enable the 8-bit Bitmap menu item, JPEG images will be quantized for display. You should not enable this option for batch compressions. You can set the number of quantizing passes to one or two. You can also turn Floyd-Steinberg dithering on/off for quantized images. For quantized images, the total number of colors in the generated palette is set with NColors. The best results, of course, will be obtained with 256 colors, but you can experiment with fewer colors. Furthermore, if you set NColors to 16 or less, and also set both 8-bit Bitmaps and Write 1&4 bit Bitmaps, saving the image to Windows or OS/2 DIB formats will produce DIBs with fewer bits per pixel, which, besides taking less disk space, can be used as icons. Checking the "Load GrayScale" checkbox will force JPEG images to be loaded without color information (only intensity).

"Load GrayScale" mode provides faster loading of image files, and can be useful for image previewing.

Compression setup

JPEG compression is "lossy". This means that the image you compress will not exactly match the original image. The "Quality" setting allows you to compromise between file size and compression fidelity. Set larger/smaller values for "Quality" to get larger/smaller files, with better/worse fidelity compared to the original image. In LView, the minimum value allowed for "Quality" is 20, and the maximum 95. When compressing images that have been dithered, increasing the value for "Smooth Factor" will make LView try to reduce image noise. That way you will get a smaller and (generally) better image. "Smooth Factor" may vary from 0 to 100, and usually a value of 20 to 50 will work fine for dithered images. Keep "Smooth Factor" turned off (zeroed) when saving non-dithered images. When checked, the "Entropy Optimization" option will make LView optimize JPEG compression tables, and generate smaller files. It will also marginally slowdown compression. When checked, the "Save GrayScale" option will compress the image in grayscale, regardless of its original color information. Turn this option on to save a grayscale image. **DON'T FORGET TO TURN IT OFF AFTERWARDS.** Sampling factors may be set to h2v2 (the default) or h2v1. Use h2v2 to obtain better compression ratios. h2v1 usually produces better image compression quality, at the expense of generating larger files.

The "Default Setup" button will restore the "factory defaults" for JPEG Options alone.

Image file formats

In this version (2.0) LView can load and save images in:

JPEG JFIF format: 24 bit image format.

GIF 87a/89a: up to 8 bit image format.

Truevision TARGA: up to 24 bit image format.

Windows or OS/2 DIB format: 1, 4, 8, or 24 bit image format.

Notes:

RLE compressed DIBs are not supported.

In future versions of this product, new file formats may be supported. Also, faster algorithms for loading/saving currently supported formats may be developed.

More about LView 2.0 ...

I was amazed the first time I saw a JPEG compressed image file. Shortly after that, I decided to do some programming and research on the subject. Well, LView 1.0 was the result of that effort. Subsequent LView versions are based on the feedback I receive from users of previous LView versions.

This editor/viewer was primarily made for my own usage and enjoyment. A goal that was fully achieved. As many people have directly and indirectly contributed to the making of this software, including the Jpeg Independent Group with its excellent work, I decided to make it available to whoever wants to use it.

In future versions of LView, more sophisticated image processing functions will be added. Some fully automated, others highly interactive. LView will become more and more a tool for experimenting and testing image processing techniques. If you have suggestions or bug reports, please send them to me. Your opinion is important !

My name is Leonardo Loureiro, and I can be reached at: mmedia@world.std.com, please mention LView in the subject line of all email messages you send.

Enjoy !

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