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Ai Picture Utility v8.5 by Applied Insights

This document was converted from the AiPICT v8.5 Help file.
It is provided as a convenience for printing.

Ai Picture Utility Index

See also **Viewer menu** **Explorer menu** **Imaging tool bar**

AiPICT enhances, manages and organizes photos. Turn ordinary pictures into "perfect pictures" with advanced imaging tools. Fix common photo problems with ease.

Create and distribute multimedia slideshows with cool effects, variable resizing, rotation, independent panels, background colors, comments and more, per slide.

Publish your images! Create thumbnailed web pages or catalogs of all your images with flexible styling options.

Quickly thumbnail entire drives (or DVD/CD volumes) and organize images by visual content, date, size, or keyword.

Viewer Menus

See also **Viewing Options** **Viewing Modes & Hotkeys** **Viewer Tool bar**

File
New creates a blank true-color image
Explore activates built-in Explorer
Open selects image with preview dialog
Reload reopens image with current viewing options
Bookmarks ...
Print sends output to printer device
Batch Files ... save/convert, rename, move or recycle bookmarked files
Save As saves/converts file format
[Copy to | Move to] duplicate or relocate current file to a new location
Delete recycles or deletes folders or files
TWAIN | [Select | Acquire]
Close terminates application

Edit
Undo restores modified image
Copy | Image copies entire image to the clipboard
Copy | Viewport copies "what you see" only
Copy | Selection copies selection to the clipboard
Copy | Grid copies pre-defined cell to the clipboard
Paste | Image pastes entire image from the clipboard
Paste | Selection pastes image in selection and clips, if necessary
Paste | Grid pastes image in pre-defined cell and clips, if necessary
Empty clears Clipboard memory
Crop retains portion of image bounded by selection
Trim removes borders of image bounded by selection
Marquee presents a dialog to adjust selection
Grid selects a pre-defined cell
Select all selects entire image
Select tool
Hand tool

View
Media | [Previous | Next | First | Last] browses bookmarked media files
Page | [Previous | Next | First Last] navigates through multi-page fax
Adjust viewport for optimal cropping or trimming
Adjust window for optimal viewing
Full Screen
Fit To Window resizes image to window
Upsampled fit enables or disables upsampling of **Fit To Window** mode
Region zoom magnifies selected area of interest
Zoom to (800% magnification at 25% increments)
Gamma adjusts screen midtones
Half JPEG loads JPEG images at half resolution for quick reviews
Options (viewer, graphics and slideshow options)
Monitor | Fit width | Best fit | TV | Wide | Custom automatically resamples image with selected aspect ratio

Image
[Resize | Rotate | Flip] (Image Resampling and Rotation)
Histogram displays chart of your photo's tonal range
Analyze quantifies image quality
Info displays image, file and system statistics
JPEG | EXIF activates JPEG EXIF/Comments utility
JPEG | Load Embedded views embedded JPEG thumbnail (if any)
JPEG | Compression activates advanced JPEG compression dialog
Promote to [16M | 256 | 16 colors] (increases color depth)
Reduce to [256 colors | 256 grays | 16 colors | BW] (reduces color depth)

Lab
- **Edit script**
- **Perform script**
- **Advanced**
- **[Duplicate | Swap image]**
- **Compute**
- **Mask Levels**
- **Mask Edges**
- **Mask Colors**
- **Create Mask**
- **Experiment**

Enhance
- **Auto Fix**
- **Clean / Soften**
- **Details / Sharpen**
- **Fix UnderExposure**
- **Fix OverExposure**
- **Fix Contrast Levels**
- **Fix Red eye**
- **Color Balance**
- **Color Saturation**
- **Color Temperature**
- **RGB Levels**
- **Parametric Equalizer**
- **Add Text Mark** writes a copyright notice or other text on image
- **Add Border** merges a colored border with variable width and height

Tools
- **UnZipper** activates Batch UnZipper
- **Slide Album** activates integrated slideshow editor/image album
- **CD Player** activates integrated CD audio player
- **Wallpaper** sets or clears desktop wallpaper
- **Associations** sets or changes file associations
- **Tile** optimizes viewer and explorer windows on desktop
- **Hide** activates built-in Explorer or Slide Album (if active) and hides Viewer
- **Memory** checks memory usage and bookmark count

Pop-Up menu includes selected viewing functions, all edit functions and interface options optimized for full screen viewing. For **"Panic button"**, press **Alt-End** to clear view and bookmarks :)

Explorer Menus

See also **Viewer Menu** **Explorer Tool bar**

The built-in Explorer main menu is distinct from context-sensitive pop-up menus.

File
Open (opens current folder or views **multiple files**)
Properties shows standard property sheet for current file or folder
Info displays graphics info for a specified file
Copy to duplicates selected folder(s) or file(s)
Move to relocates selected folder(s) or file(s)
Delete recycles or deletes (with shift pressed) selected folder(s) or file(s)
Rename renames selected file(s) or folder
Datename renames selected file(s) or folder with date/time format
Add extension appends a file extension to files(s)
Slideshow | Instant slideshow bookmarks and runs all files in selected folder
Slideshow | Slide album adds all files in selected folder to Slide Album
Comment adds/edits free text file comments or adds EXIF datestamps
New Folder creates a new folder ready to be renamed
Close terminates application

Edit
Select [All | All Files | All images]
Invert selection (selects all unselected items)
Query Comments finds items with matching keyword
Find filename searches for and highlights partial filename
Match compares thumbnails and selects closest match

View
Controls (hides or shows controls)
Thumbnails (displays thumbnails in list view)
Icons (same as Windows Explorer)
List (multiple column format, same as Windows Explorer)
Details (report format; includes image dimensions)
Thumb size (adjusts size of all thumbnails)
Font (changes the list view and tree view interface font)
Arrange by [Name | Size | Date | Type | Family] (sorts items accordingly)
Folder size (populates list view with calculated size for each folder listed)
Refresh (updates listing of current folder and sub-folders)
Detect drives (updates listing of removable mass storage drives)
Networks (enables network support)
Options (changes thumbnail size and other options)

Go
[Back | Forward] cycles through folders opened during your session
Up One Level changes current folder to parent folder
To .. displays a Browse dialog with tree view, to select new folder
Windows.. navigates to special folders (e.g., My Document, Recent Files, Favorites)
History activates dialog with history of visited folders
Recent accesses Recent folder shortcuts

Tools **Viewer** activates integrated viewer/image processor
Slide Album activates integrated slide album/slideshow editor
UnZipper activates Batch UnZipper
CD Player activates integrated CD audio player
HTML Make | Simple Page (simple web page for "dummies")
HTML Make | Image catalog (thumbnail catalog of entire folder or drive)
HTML Make | Web Page(s) (instant web page or catalog with thumbnails)
HTML Make | Directory tree (independent Table of Contents page)
HTML Options (changes look and function of Instant Web Page)
Cache | Info shows properties of thumbnail cache
Cache | Clear deletes thumbnail cache of all visited folders
Recent | Add creates a link to current folder in application's **Recent** folder.
Recent | Clear deletes all entries in application's **Recent** folder.
Tile optimizes viewer and explorer windows on desktop

Pop-Up Context menus -- if you right-click list view or tree view a combination of the following will appear, depending on item(s) selected

Up One Level (same as Main menu)
View | [Thumbnails | **Icons** | **List** | **Details]** (same as Main menu)
Arrange by [Name | Size | Date | Type] (same as Main menu)
Options (same as Main menu)
Comment adds or edits file comments
Query finds files with matching keyword
Slideshow | Instant slideshow
Slideshow | Slide ablum
Redo thumb (updates selected thumbnail)

Open, **Copy to, Move to , Delete, Rename, Refresh, Update**
(same as Main menu, see above)

Go to (same as Main menu)

Locate (tree view only; special function to search sub-folders of current node)
First child (tree view only; goes to first child of current node)

Explorer Options

See also **Explorer Menu** **Viewer Menu**

Right-click on tool bars (or status bar) to hide or show controls. Select **View|Options** (Alt-O) for all options.

Viewer (options tab)
Graphics (options tab)
Slideshow (options tab)
Multimedia (options tab)

Explorer (options tab)

Folder tree (show/hide tree view containing folders). Adjust its width by moving the **vertical splitter** between the folder tree and list view. Drag & drop operations are also supported. It can be hidden for faster file updates and/or more desktop real estate. Its pop-up context menu has the following commands:

Copy to (duplicates selected folder)
Move to (relocates selected folder)
Delete (recycles or deletes selected folder)
Rename (renames selected folder)
Refresh (rebuild tree view)
Arrange by [Name | Date]
(sorts siblings of current node)

Tip: If hidden, right-click on empty space (no selections) and select **Go to** from pop-up menu.

Listview tool tips (enabled) shows small pop-up windows with complete long filenames, image dimensions, file size and date for any listview object.

Tool bar shows/hides buttons with common commands.

Button Text shows/hides toolbar labels and adjusts button size.

Status bar shows/hides feedback on processes and file details.

Single click interface (disabled) opens selected item as if it were double-clicked (i.e., "point to select" interface). Select items by "hovering" mouse over it. **Underline items** simulates look and feel of Internet links.

Auto refresh (enabled) monitors file additions and deletions. Disable this feature on slower computers and manually **refresh** (F5) listings to update.

Use Viewer (disabled) plays supported multimedia files with integrated Viewer. Disable to use default associated application.

Advanced (options tab)

Use embedded thumbnails (enabled) loads embedded JPEG thumbnails and uses it in built-in Explorer and Slide Album. As thumbnails are pre-rendered, it has speed advantages. Its disadvantage is fidelity and size; thumbnail quality will vary with different image originators. If accurate image rankings and comparisons are required, disable this option. The Viewer loads embedded images independently; from Viewer menu, select

Image | JPEG | Load Embedded

Save profile (enabled) restores all settings during next session; you can disable this option to apply temporary changes to a session (or instance for a different view).

Disable viewing prompts (disabled) skips the confirmation dialog when activating special **viewing modes** (e.g., widescreen, best fit).

Prompt before closing Viewer (disabled) shows a pop-up menu before closing application via Close (system menu command). This provides an option to hide Viewer instead of terminating entire application. Enable option if you need a larger window size when switching between the built-in Explorer module and Viewer module.

Confirm deletions (enabled) prompts when deleting or recycling files. A warning (which can be overridden for any given session) is still displayed when recycling folders.

Log visited folders to Recent (enabled) creates shortcuts of accessed folders.

Multi-core thread priority sets the amount of CPU usage to be allocated for thumbnailing and compression. Depending on your setup, a **normal** (default) or **lower** thread priority setting yields optimal results.

Viewer Options

See also **File Associations** **Viewing Modes & Hotkeys**

Right-click on tool bars (or status bar) to hide or show controls. Select **View|Options** (Alt-O) for all options.

Viewer (options tab)

Menus shows/hides classic standard menus.
Statusbar shows/hides image info and active state.
Tool bar shows/hides file and viewing commands.
Imaging bar shows/hides selected imaging commands.

Path box shows/hides current **bookmark** (similar to "address bars"). It can be edited to open a specified file.

Merge Tool bar and Path box combines primary **Tool bar** and **Path box** into one for users that frequently use full screen view.

Background color changes workspace color behind image; this is also the default background color used by slideshows. To restore default Windows color; **do not select any color** and **click OK** in Color dialog.

Maximize Full Screen hides all controls in **Full Screen** mode. The **with menus** option shows menus with path/filename in menubar for enhanced access while retaining maximum viewing landscape.

Mouse wheel navigation displays (or plays) previous/next image (or multimedia) file. **Mouse wheel button assignment** provides a convenient user interface option to Unmark or Recycle currently viewed file.

Auto Size adjusts Viewer window with each new image.
Auto Center same as AutoSize; centers Viewer window.

> If you want window to adjust its size but stay at its current position, enable **AutoSize** and disable **Auto Center**. Adjust window function works independently.

Graphics (options tab)

Photo-CD step changes resolution of Photo-CD images.

Fax quality sets anti-aliasing mode when decoding b/w (monochrome) images. Anti-aliased text reduces the image and smoothes text for improved readability.

Fast BMP decoding (enabled) uses optimized routines to view BMP files; disable to view non-compliant BMP files.

Fast Refresh (enhanced scrolling routines)

Slideshow (options tab)

Effects presents a dialog to choose from 173 transitions. Click desired effect(s); effects are chosen randomly; to assign an effect per slide use the Slide Album.

Speed globally changes the rate effects are displayed.

Delay adds a wait to each slide in seconds. You can set a delay up to 3600 seconds (1 hour) to discuss or present a slide; **right-click** on Window to cancel delay. To assign a delay per slide use the Slide Album.

Auto Size video will try to double or quadruple video size (optimal on most systems); otherwise, it is fitted to current window or screen. Disable for actual video size. To set video size per slide use the Slide Album.

Always full screen will always enable **Full Screen** mode to run any slideshow.

AVL jukebox (disabled) plays audio files till done; slideshow does not advance till audio is finished. Use this feature if you want to play a list of audio files just like an audio jukebox; you can insert graphics between songs as background. If disabled, you can set the **Wait** property of the slide to match the duration of the audio track for individual control.

Text position sets panels for text (TXT, RTF files) in your slideshow. **Top** and **bottom** options force panels to appear at top or bottom of slideshow window with up to three lines of text (depending on font). **Auto** creates and positions custom panels per slide , see Slide Album; if no custom panel is set, the **bottom** setting is assumed.

Note: AVL comments are unobtrusive text shown with graphics at the top or bottom of your slideshow window; they are limited to one line of text.

Multimedia (options tab)

Player controls (show/hide standard controls)
Track bar (show/hide position tracker)
Status line (show/hide status information)

Max Full Screen (show/hide all controls full screen)
Auto Play + Loop - automatically plays opened audio and video files; it will rewind and replay up to 999 times; stop playback to terminate replays.

Explorer (options tab)
Advanced (options tab)

Viewing Files and Playing Multimedia

See also **Multimedia Options** **Bookmarks** **Slide Album**

Using the Open File dialog

The Viewer's Open File dialog includes a **preview window** and **Preview button** (enabled by default) that shows thumbnails; disable **Preview button** to manually activate previews. Image dimensions (width, height, color depth or pages) are displayed for selected file.

Playing Multimedia Files

Multimedia video and audio support is provided via MediaPlayer's interface; visit Microsoft's web site to download MediaPlayer upgrades. Playing local video and audio files (not streaming from the Internet) is identical to using MediaPlayer. You also have the convenience of using our Viewer interface for sizing, zooming and full screen playback a consistent interface for both graphics and video files.

During video playback you can use **Fit To Window** mode to scale video to any size, or zoom in and zoom out. **Tool bar** equivalent functions can also be used. In addition, **Play/pause** and **stop** pop-up menus are available - including **spacebar** to play/pause playback.

Opening Multiple Files

If you select **multiple files** to view, the first selection is immediately opened; and remaining files are added to bookmarks. To review bookmarks, use **PgUp**, **PgDn**, **Home** and **End** keys (e.g., in Full screen), equivalent **toolbar** buttons, or select:

View | Media | [Previous | Next | First | Last]

Ctrl-F6 (Previous) and **Ctrl-Shift-F6** (Next) can also be used.

AVL Slideshow Overview

AVL slideshows have four *tracks*: digital audio, CD audio, digital video, and graphics, Digital audio plays until a new audio or video file takes over. Graphics can overlap with various effects and remain as video background. **CD audio** is independent. To run, open an AVL script with Open dialog, or double-click a AVL file in Windows.

- 173 effects can be individually assigned per slide.
- Graphics and video can have independent panels.
- **RTF** text (with variable fonts and colors) can be used to display pre-formatted text.

Tip: You can create an AVL slideshow with all supported multimedia files in one step. From built-in Explorer, select **Files |Slideshow |Slide album**. All files in current folder (or drive) and nested folders will be added. You can even create stand-alone slideshows that can be **distributed on DVD or CD**.

Viewing Modes & HotKeys

See also **Viewer Menu** **Viewing Options** **Viewer Tool bar**

The Viewer is flexible and versatile; images (and video) can be viewed in a variety of modes to fit your needs. By default, images (and video) are displayed in a resizeable window with borders.

Adjust window resizes window to show as much of the image within the current window.

Full screen (Alt+Enter) is a borderless viewing mode that uses your entire desktop for maximum viewing "real estate"; images can be fitted or zoomed in this mode.

Press **Esc** to return to Normal Window, or right-click and select **Normal Window** from pop-up menu. To switch between other applications press **Alt-Tab**.

Fit To Window (Ctrl+F) fits image to current window; images are automatically resized to fit any window size; only the displayed image is resized -- the image is not modified. If disabled, the actual image is displayed; zooming in/out and a hand tool is made available for scrolling the image.

The **Upsampled fit** option for **Fit To Window** mode is enabled at the start of any viewing session; it fills the entire viewing window with upsampled views. If you want "small" images be centered in actual size, disable this option. To change this option, select **View | Upsampled fit**

For quick JPEG views in **Fit To Window** mode,

1. Select **View | Options**
2. Click **Graphics** tab
3. Enable **Half JPEG mode** (described below)

This option loads scaled portions of the JPEG image if the full image is not required. For example, the status bar would display **[1:2]** indicating 50% magnification.

Often, you will have images that are larger than your viewing window; you can change magnification to reduce the size of the image or you can use the **Fit to Window** mode**.**

View | Monitor is the default setup; image is not modified.
View | Best Fit resamples image to fit window size.
View | Fit Width resamples image to fit window width.
View | Custom resamples image to custom aspect ratio.

When video frames are captured/viewed on a computer, your display expects a square (1:1) aspect ratio; you can use the following modes to correct aspect ratios, irregardless of window size.

View | Wide resamples image fit current window size with a widescreen 16:9 aspect ratio. If you capture MPEG frames in native format, this mode corrects the aspect ratio. Capturing raw MPEG frames is advantageous as it avoids scaling artifacts exhibited by decoding software or device drivers.

View | TV -- Similar to above; uses 4:3 aspect ratio.

Letterboxed images are encoded with black borders on the top and bottom of the frame. Letterboxed widescreen images are typically corrected for TV display. Letterboxed anamorphic images are typically corrected for widescreen displays. If letterboxed images appear "flat" try a different viewing mode.

Note: Multipage documents (e.g., DCX) require special handling (e.g., grayscale anti-aliasing) and have varying resolutions within the document; automatic aspect ratio correction is immediately restored to default (i.e., Monitor mode) when viewed. You can always apply all available image processing capabilities to a given page (image) once viewed.

HotKeys -- Advanced users can take advantage of hotkeys (in addition to assigned shortcuts) to boost productivity. If **Path box** has focus (e.g., editing filename), hotkeys are disabled.

H - **Half-JPEG mode** this option forces only a scaled portion of a JPEG image to be loaded if the full image is not required. This option takes effect irregardless of other settings and viewing modes. The status bar would display **[1:2]** indicating 50% magnification, and so forth.

By loading only a partial image, reviews of large image sets with large photos proceeds very quickly as the time required to view each image is drastically reduced. Memory usage is also optimized. Disable this option when the full image is required for editing or image processing.

You can set a threshold when to view the scaled JPEG image. For example, at 65% setting, the reduced JPEG image is viewed if its reduced width or height fits 65% (or more) of the current viewport. On a 1024x768 viewport, a 1600x1200 image is loaded as 800x600 (i.e., **1:2** scale). On a 512x480 viewport, the same image is loaded as 400x300 (i.e., **1:4** scale), and so forth.

1 - 100% (actual pixels)
2 - 25% zoom
5 - 50% zoom
7 - 75% zoom

F - **Fit-toScreen** toggle (same as **Ctrl-F**)
W - **Full Screen** toggle (same as **Ctrl-W**)
G - Screen **Gamma** (midtone brightness)

D - Delete (recycle) current file (same as **Del** key)
M - Move current file (**Ctrl-M** for batch move)
Y - Copy current file

Left (arrow) - previous bookmark (same as **PgUp**)
Right (arrow) - next bookmark (same as **PgDn**)

U - Unmark current bookmark (same as *** key**)
B - View all **bookmarks**
R - Run **instant slideshow**
E - **Explore**

Saving, Compressing & Format Conversion

See also **Viewer Menu** **Batch Files**

How to save or convert file format

1. Select **File | Save As**.
2. Specify destination folder and **File type**.
3. Overwrite existing file or enter new filename in **File name** Edit box; click **Save** button.

Note: Adobe PhotoShop and ImageReady TIF files uses non-standard deflate compression tags -- which may not be read by other apps. Specify (Deflated Adobe TIFF) in "Save as type" field of Save dialog to export this variant.

How to Batch Convert (Encode)

1. Select **Files | Batch Files| to**.
2. Review **bookmarked** image files.
3. Click **Ok**, then select a target folder for compressed files from next dialog.

How to Use Advanced JPEG Compression Options

1. Select **File | Save As**.
2. Select **JPEG** from **File type** drop-down list, **Compress** button appears.
3. Click **Compress** button; a new dialog appears.
4. Change compression options (see section below) and click **Test** button.

   Aside from knowing the actual filesize, the full compressed image is resident in memory. Use **image scroll bars** to compare the original and compressed image.
5. Click **Save As** button. From Save dialog, specify destination filename then click **Ok**.

Note: Experienced users can access JPEG Compression dialog directly by selecting

Image | JPEG | Compression (**Ctrl-J**)

Advanced JPEG Compression Options

Standard compression has a maximum setting of "**99**" which is adequate for typical photos. Advanced compression options allow you to set compression levels up to "**500**". High compression settings (e.g., over "120") may severely degrade image quality. The following options provide additional compression benefits. Options are executed and saved to default profile after clicking **Test** button. Resulting file size and compression ratio are shown in dialog status bar. Settings are reloaded as your default preference during startup. These options are automatically applied to **batch** JPEG saves/conversions.

Progressive option encodes interlaced scan lines for a "transition effect" (applies to image downloaded and viewed online by Internet Browsers). Image quality usually improves; compression may increase (or decrease) depending on compression setting and other set options.

Subsample option reduces the number of color samples to substantially boost compression; artifacting and overall loss of color fidelity may be evident.

Smoothing options minimize undesired artifacts and improves compression results. Smoothing effects can be changed via the **Filter** setting.

Standard filter works internally with encoder and is very fast. High filter settings result in fuzzy images.

Parametric filter effectively reduces image artifacts exhibited with **subsample** option with subtle smoothing at medium settings.

Clean filter applies a proprietary algorithm to retain sharp edges and smooth everything else; it has a pleasing "glamour" effect and effectively minimizes artifacts at high compression levels.

Image Catalogs & Thumbnailed Web Pages

See also **Web Page Options** **Image catalogs**

How to create *Simple Web Pages* .

Select **Tools | HTML Make | Simple Page**.

You are prompted and guided every step of the way. After your page is created, upload ALL the files in the Upload folder (you selected) ... that's it!

How to create *Advanced Web Pages* .

1. Select **files** to be included in Web page and change to thumbnail view.

2. Select **Tools | HTML Make | Web Page(s)**.

3. Change **Page options** (presented in dialog), if required.

4. Specify destination folder.

5. Overwrite an existing file or enter new filename in **File name** Edit box; click **Save** button.

Note: Select **Internet Web Page** option to publish your page; **Fixed** and **/DVD/CD image catalog** options use file-based URLs for local catalogs. There are many options to change the function and appearance of your Web page (including **contact sheets**). Use a fresh folder to easily upload page and associated thumbnails -- which must be located in the same folder (directory); the full images can be anywhere. Thumbnails can be saved with variable compression setting. Feel free to experiment; you can delete all thumbnails by searching for all **thumbs** sub-folders with Windows Find Files utility

How to upload your *Advanced Web Page*.

Upload your full images and web page(s) to the same location. Upload the thumbnails in a sub-folder called **thumbs** in same location. If you do not have a folder called **thumbs** you must create it before uploading your thumbnails into it. For example, AOL users would have a directory structure as follows.

mypic-1.jpg
mypic-2.jpg
mypic-3.jpg
mypic-4.jpg
mypage.htm
private
thumbs
    _mypic1.jpg
    _mypic2.jpg
    _mypic3.jpg
    _mypic4.jpg

The contents of **thumbs** folder is not visible. Open it (via WAOL), then upload your thumbnails into it. The **thumbs** sub-folder is case sensitive - all lowercase; **thumbs** is not the same as **tHumBs**. Advanced users can upload the full images anywhere, provided they enter the appropriate Network URL prefix (path) in adjacent Edit box (e.g., http://www.mysite.com/pics/) -- otherwise, leave it blank if full images are located with web page(s) as shown in above example. The **thumbs** folder can be temporarily changed via **Tools | HTML Options | Set** to any name (e.g., "images" for some sites).

Web Page Options

See also **Create Web Pages** **Image catalogs**

Select **Tools | HTML Options | Set** for the Web Page options dialog. It simulates the actual page and lets you change the function and appearance of the page(s) before they are created (with **Always review settings** option enabled). There are three types of Web pages:

1. **Fixed image catalog** tracks images from different volumes in one folder.

2. **DVD/CD image catalog** thumbnails and indexes folders for offline storage.

3. **Internet Web Page** displays/links thumbnails from your Web site; a **Network URL prefix** (path) can reference any Internet location. (e.g., http://www.mysite.com/pics/).

   An **Image banner URL** and/or **User Home URL** can be linked to your pages. The banner appears at the top of the page. The "Home" button appears between the "Back" and "Next" buttons). To enter your URL, edit the adjacent edit box (e.g., http://www.test.com). With image catalogs, the "Home" button is automatically assigned to an optional Table of Contents. **Sub-folder** temporarily assigns thumbnails and image maps to this location; **thumbs** sub-folder is reassigned for all HTML catalogs.

Choose from **contact sheets** or regular thumbnails. **Contact sheets** are very efficient and are automatically mapped with equivalent thumbnail links. You can change the size of the contact sheets via **PageWidth** setting; additional contact sheets are automatically created to thumbnail selected images. Regular thumbnails can be split across multiple pages via **Thumbnails per Page** option. 16 thumbnails per page is optimal for the Internet. "Back" and "Next" browse buttons are automatically created and assigned for multiple pages.

3D browse buttons shows user-friendly buttons instead of navigation links (recommended with image catalogs); Internet pages may trigger a security dialog (depending on browser settings).

Page Width limits the maximum size of contact sheets or regular thumbnails per row (with **File Details** option). **File Details + table grid** option shows/formats file name and size in a table format, determined by **Page Width** and thumbnail size. You can disable this option for flexible thumbnails (i.e., adjusts to any page size) -- filename and size appears in Browser with mouse movement over thumbnails.

Image border adjusts thumbnail border indicating link access in Browsers. **Grid border** adjusts 3D frame padding thumbnail rows (MSIE uses Windows 3D scheme). **Image comments** inserts **comments** below thumbnail; the grid row adjusts to accommodate text.

Page color changes background color (and 3D objects in some Browsers) of entire page -- medium colors render best. **Font color** affects all static page text. **Grid color** affects the exterior thumbnail background.

Use Frames directory option shows Explorer "tree-style" directory in left pane, catalog and images in right pane. "Home" button is absent, as you select catalogs via Table of Contents on left pane.

Select images only option selects **supported images** during batch catalog creation.

Always review setting option reviews this dialog before page creation.

Launch browser after (creation) option, activates browser to review actual web page.

Image Catalogs

See also **Create Web Pages** **Web Page Options**

Image catalogs are thumbnailed Web pages of images in an entire drive or folder. You can catalog a single-folder or just selected images in a folder; a convenient batch catalog function is also provided for entire drives and/or nested folders. All catalogs can be copied or moved to any drive or folder on your system; the thumbnail pages will remain valid provided the ***thumbs*** sub-folder always accompanies it (and is **not** renamed). Avoid file/folder names with **"#" or "%" characters** --it confuses Internet Browsers.

Fixed image catalogs reference "live" images on your system. As such, you can catalog various folder contents from different drives or removable media via Web pages in a single folder (e.g., \MyPics) to take stock of your images. As a Web page, your browser automatically views full images or thumbnails wherever located on your system -- image information and thumbnails will always be present even if the media is not inserted -- of course, to view the full image, media must be inserted. An optional **Frames directory** can be created to conveniently view an "Explorer-style" Table of Contents in left pane and selected image catalog in right pane.

Note: Since you may have similar filenames in different source folders, **thumbnails are never overwritten**; thumbnail filenames are simply incremented -- 00000002.jpg is created if 00000001.jpg exists.

DVD/CD image catalogs use relative URLs to offload accumulated images to removable storage media. Create these Web page(s) in the **same folder with the full images** before writing the entire folder to removable media; a ***thumbs*** sub-folder is automatically added.

Note: Thumbnail filenames match original filenames with a "_" character prefix added (to avoid accidental overwriting of full image); for a file called "mypic.jpg", a thumbnail named "_mypic.jpg" is created. You can upload these catalogs (see FAQ) to Web sites, but keep in mind that some servers do not support filenames with more than 20 characters -- as such, you should check your filenames and limit them to 19 characters or less.

Select **Tools | HTML Make | Image catalog** for a convenient batch function that creates **Fixed** or **DVD/CD image catalog** of all folders/sub-folders of selected drive or folder. A **Table of Contents (ToC)** page links all cataloged folders and includes a **Home** link in each thumbnail page. Type of catalog (and look) can be changed via **Page Options**. With **DVD/CD image catalog**, the **ToC** feature is optional; cataloged folder and sub-folders can be moved "up" to any level (e.g. root of drive or volume) or to a new folder provided sub-folders are not renamed or moved in relation to its parent. If you do not opt for **ToC** feature, you can rename or move cataloged folders freely.

Create Directory tree function creates a **Table of Contents (ToC)** of all folders/sub-folders in selected drive or folder. Use it as a handy summary to track contents of "offline" media contents; links will view selected folder (in browser) if media is inserted.

Image Comments

See also **Slide Album** **Advanced Web Pages**

Comments are free text descriptions or keywords associated with each file (or slide). There are **three** kinds of comments.

Explorer comments

These comments are associated with each file in every folder. FILELIST.AIX and FILETEXT.AIX in each folder retain the information even if folder is moved. Associated text has no limit; 10 words (or less) is recommended. Explorer comments can be added to Web pages with **table grid** option.

To add text to a highlighted file, select **File | Comment**. (or **Comment** from pop-up menu). You can specify keywords, a copyright notice or an extended description. If used for keywords, select **Edit |Query Comments** function to find all files in current folder with a matching keyword. Comments are displayed in **Details view**.

JPEG comments

These are imbedded free text in **JPEG** files only. These comments have no limit and are typically used to include copyright information.

Slide Album comments

These comments are fields associated with each slide no matter where they are located -- the actual source files can even be "offline" in removable media (e.g., DVD/CD). Its uses are legion. These comments have a 256 character limit. Aside from keywords and free text, the Slide Album can automatically populate all comment fields with filenames for sorts and queries.

- When used in AVL slideshows, your comments can be displayed on the top or bottom to the full screen, depending on the global **text position** option.
- When used primarily in Slide Album, your comments can be applied as a sorting index or keyword query filter. See **Using Slide Album as Database**.

Printing & Screen Capture

See also **Viewer Menu**

How to Print Your Photo

1. Click tool bar button or select **File | Print**. Dialog shows current paper size, orientation, resolution and preview.

2. Click **Print It**.

Click **Setup** button to change printer settings (e.g., landscape or portrait). By default image is resampled to fit the entire page; resize printed image with **print size scrollbar.**

If downsampled, preposition resized image by adjusting **size, horizontal** and **vertical position** scroll bars; the print preview reflects changes.

The default printing device is always selected. Some printers do not setup their printer as a default device; please ensure that a default printer is installed.

How to Capture Screens

1. Press **PrtSc** (Print Screen) to capture entire desktop, or **Alt+PrtSc** for active window.

2. Select **Edit | Paste**.

Note: If a blank (black or purple) screen results when capturing still video frames via MediaPlayer (or QuickTime, RealPlayer ...) interface, temporarily set **Hardware Acceleration** to **None** to send all images to your screen device. After capturing desired screens, restore your **Hardware Acceleration** setting to **Full**. The **PrtSc** key is software assignable; this is the default Windows function and may be changed by other applications.

a) Activate **Display Properties** (right-click on desktop background and select **Properties**).

b) Click **Settings** tab and click **Advanced** button. On Windows XP, click **Troubleshoot** tab.

c) Change **Hardware Acceleration** setting.

Batch UnZipper

See also **Explorer Menu** **Viewer Menu**

The Batch Unzipper is an integrated utility that quickly extract contents of multiple ZIP files to a target folder (e.g., an image set). The left window pane is the batch list of ZIP archives; the right pane shows the contents of selected ZIP archive.

Archives | Clear removes all archives from batch listing
Archives | Add appends **multiple archives** to batch list
Archives | Cut removes selected archives from batch listing
Archives | Delete recycles selected archives from batch listing

Options | Skip duplicate target files avoids extracting files where target file exists; an exception is generated and added to the log. If option is disabled (default), a duplicate filename is created. Disable this option if you have unusual ZIP files which contain duplicate files (e.g. Pictureview ZIP files)

Options | Auto-extract to sub-folder (default) creates a target folder where the ZIP archive resides using the archives' name (without ZIP extension). If a directory structure is included in the archive, the target folder will be treated as the root folder for extraction. For example, if **images.zip** resides in "c:\MyPictures" files are extracted to "c:\MyPictures\images"; if archive has a specified directory structure (e.g., "\updates"), files are extracted to "c:\MyPictures\images\updates".

Extract all decodes the entire batch list to a target folder
Extract | Selected Zips decodes only selected archives in batch list
Extract | Single file decodes only selected file in selected ZIP archive

How to UnZip Multiple ZIP archives

1. Select **Tools | UnZipper** to activate.
2. From Unzipper menu, select **Archives | Add** to include multiple ZIP files or drag & drop files from other applications (e.g., Windows Search results).
3. Select **Extract All**. You can click (with **Ctrl** key pressed) individual ZIP files in left pane and extract only those archives with **Extract | Selected Zips** command.

   You are always prompted for a common folder where all files will be extracted. Files that exist (with same name) on target folder are never overwritten.

Tip: Pressing **shift** key with **Extract All** command uses the original folder (location) to extract each archive and automatically recycles ZIP source files after successful extraction (saves you multiple steps). If an error is detected or a target file exists, the ZIP archives are not recycled.

How to Extract a Single File

1. Select **Tools | UnZipper** to activate.
2. If you have multiple ZIP files listed in left pane, select (click) one. From archive listing (right pane), select (click) desired filename.
3. From the Unzipper menu, select

   Extract | Single File

   You are prompted for a target folder.

Note: You can use the built-in Explorer to select multiple ZIP files from its list view and simply click **Open** button from toolbar (or **Open** via pop-up menu). It will automatically activate the Unzipper and populate it with selected ZIP files.

Managing Visited Folders (or Bookmarks)

See also **Viewer Options** **Explorer Tool bar**

Recent folder shortcuts

Windows tracks all folders accessed by the **Open** and **Save** dialogs in a special **Recent** folder with shortcuts. This conveniently reopens visited folders that may reside in deeply nested locations on your computer or networked computers within the Open and Save dialogs. Depending on system settings, these are cleared after each session or after a preset time.

We have replicated similar functionality with a ***Recent folder*** located in our application directory. Folder shortcuts are not automatically deleted; these can be deleted at your leisure. To disable folder tracking, uncheck **Log visited folders to Recent** option. AiPICT's explorer includes a tool bar button to quickly access its Recent folder and the following functions.

Tools | Recent | Add creates a link to current folder.
Tools | Recent | Clear deletes all entries.

Folder bookmarks

Like bookmarks, a history of visited locations (folders) are tracked and saved. You can conveniently revisit any deeply nested folder without having to browse through parent folders. Just select (click) a folder and click **Go to** button access location directly

To delete an item, select (click) a folder and press **Del** key.

Sort all button alphabetically arranges all history items.

Browsing for Folders

See also **Distribute Slideshow on DVD or CD**
Viewer Menu **Explorer Menu**

A single folder is required when copying or moving source files (or folders), or recursively adding all available slides to the Slide Album. As a folder can reside within deeply nested folders, another drive or networked computer, the Browse dialog conveniently displays a tree view, to navigate and select a desired folder.

Advanced users can use the **Edit box** (near the top of dialog) to specify a desired folder; it also tracks the most recent 16 folders accessed during any given session. Click the **drop down** button to display recently accessed folders during your session. There are two tool bar buttons.

Up One Level changes current folder to parent folder.

Go to specified folder accesses the path typed in the **Edit box** and makes it the current active folder. Prior to activation it will validate the folder's existence. Paths specified in the **Edit box** remain inactive until this button is pressed.

New Folder creates a new directory inside current folder. Function is automatically enabled or disabled if current folder is detected as "read-only" or normal.

To access **networked** drives, check the **Show networked drives** option. Available drives will be added and made visible in the tree view. Specifying and accessing a networked folder in the **Edit box** is supported if networked drives are visible. The **Show networked drives** option is enabled in all dialogs only if native network support is enabled in built-in Explorer via its menu command

View | Networks

Viewer Bookmarks

See also **Slideshow Options** **AVL Slideshows**

Bookmarks are simple lists with complete pathnames, which can be used to:

- **batch save/convert, move, delete or rename**
- run instant slideshows

There are two kinds of supported slideshows: **bookmark slideshows** and **AVL Slideshows**. The former is a sequential list of bookmarked multimedia files that conveniently reviews 1000s of files (up to a million). As it is sequential, aborted slideshows position last opened file in Viewer for subsequent actions.

How to Create an Instant Slideshow with Explorer

1. Activate built-in Explorer
2. Open desired folder that contains your pictures.
3. Click **Slides** button
4. Select **Instant slideshow**

All eligible files are imported as bookmarks and played as an instant slideshow. From the built-in Explorer, you can also select **File | Slideshow | Instant slideshow** or equivalent pop-up menu command.

Bookmarks |

View displays a list of current bookmarks.
Run plays bookmarks as a simple slideshow; click window or press **Esc** to stop.

Unmark removes current file from bookmarks
Clear deletes all bookmarks.
Sort alphabetically arranges file list.
Load restores bookmarks from an AIP file.
Save writes list of bookmarked files to an AIP file.
Album sends bookmarks to Slide Album for sequencing or advanced effects, per slide.

Move Up moves item up in the queue.
Move Dn moves item down in the queue.

Automatic Image Enhancement

See also **Imaging tool bar**

Novices and professionals can choose from an array of automatic image enhancement functions that correct a wide range of image anomalies. Statistical information is analyzed and applied to make desired image enhancements; automatic functions do the thinking for you. By default, you are prompted to review results; if your image is particularly difficult to fix, alternative methods are presented. While viewing an image, select **Enhance | Auto Fix ...**

AutoReference improves color balance in one step.

AutoWhite - improves color balance by using an unsaturated "perfect" white reference in your image.

AutoBalance - Boosts brightness and saturation such that colors that should be "pure white" are used as a reference and all other colors are balanced accordingly.

AutoSaturate - Boosts the dynamic range of image's color vibrancy (i.e., saturation); it behaves similarly to some "color pilot" controls on TV sets. Only color intensities are modified, brightness levels are not affected.

AutoContrast - Stretches shadows and highlights; corrects images that appear "flat".

AutoLighting - Enhances the dynamic range of image's luminance component (i.e., gray shades); it behaves similarly to "auto picture" controls on TV sets. Color information is not modified, only brightness is affected.

AutoGamma - Provides maximum boost of midtones without clipping highlights.

AutoFlash - Shadows and midtones are boosted as if a camera flash was applied.

Related Topics

Fix UnderExposure
Fix OverExposure
Fix Contrast Levels

Balance colors
Add more color to photo
Adjust hues and tints

Flip, Rotate, or Fix a crooked photo
Resize. make an photo smaller or bigger

Sharpen a "dull" photo
Remove noise or spots from photo

Fix "red eye"

Crop, Edit Photo or Make Collages
Add an Image Mark
Add a Border

Print photo

Image Resampling and Rotation

See also **How To Use Image Enhancement Dialog**
Noise Removal and Cleaning Filters **Imaging Lab**

The Viewer's main **Image** menu includes the following commands.
Available **lab commands** are listed in **blue**.

Resize | [Interpolate | Resample] changes the resolution of your photo by making it larger or smaller. **Interpolation** method discards excess pixels when downsampling or replicates pixels when upsampling. **Resample** function smoothes "jaggies" when downsampling an image.

RESIZE=<width>,<height>
RESAMPLE=<width>,<height>
RESAMPLE% variable magnification (1% to 799%)
RESIZE% same as above -- without smoothing.
RESAMPLE%% precise magnification (0.01% to 799.99%)
RESIZE%% same as above -- without smoothing.

e.g.,
RESAMPLE%=200 (upsample, 200% magnification)
RESAMPLE%=50 (downsample, 50% magnification)

RESAMPLE%%=20044 (upsample, 200.44% magnification)
RESAMPLE%%=3334 (downsample, 33.34% magnification)

DOWNSAMPLE=<maxwidth>,<maxheight>
Resamples images to fit a target display or thumbnail.

Using the Image Resize dialog

By default, the dialog is populated with original dimensions (**width** and **height**) of viewed image.

Use the up/down spinners to tweak the values or enter a new value in any **edit box**. Manually edited values are validated when you press <enter> key. Press the dialog's **Reset** button to restore original image dimensions.

If **Keep aspect ratio** option is enabled, changes made to target width automatically adjusts target height with the same proportions. A square (1:1) aspect ratio for computer displays is assumed.

Rotate | [Normal | Fine] transforms image (by rotation) with 1 degree (normal) or 1/100 degree (high) precision. Shortcuts to common 90 degree settings are included. Use high precision rotation (fine) to fix crooked images.

ROTATE=<degree> (1 to 359 degrees).
ROTATE_FINE=<degree> (1 to 35999 degrees).
Note: 1=0.01 degrees, 35999=359.99 degrees

Flip | [Vertical | Horizontal] transforms image by mirroring it vertically or horizontally. Unlike rotation that reorients an image, mirroring process literally transforms an image as if viewed from a mirror.

FLIP_VERTICAL
FLIP_HOROZONTAL

The following functions internally resample and restore image to its original size.

Resize | Enrich uses a proprietary filter that increases color diversity and applies smoothes image while keeping original detail. Aside from pleasing effect, additional color variance enhances subsequent color corrections.

ENRICH

Resize | DeLace uses a proprietary filter that removes "staircase" artifacts exhibited with video captures and related motion-blur artifacts. If you captured both odd and even fields use Interlace function instead.

DELACE

The following functions require a subsequent downsampling of the image to attain desired result.

Resize | Mosaic replaces each neighborhood of pixels with an average color that represents the group. To retain maximum detail with extreme downsampling (e.g., 600dpi scan to 100dpi), we recommend applying the **mosaic** function first. In the case of a 600dpi 8"x11" scan (i.e., 4800x6600), apply a 6x6 tile, then **resample** or **resize** to 100dpi (i.e., 800x1100).

MOSAIC=<tile size> (2=minimum, 16=maximum)

Resize | DePixelate minimizes (or eliminates) unwanted pixel artifacts from your digital photos (taken with common CCD cameras). It is intended to be used with images taken at your highest resolution, for subsequent downsampling, as resolution is effectively reduced by 50% (e.g., 2048x1538 to 1024x768).

DEPIXELATE (standard filter)
DEPIXELATE=1 (alternate filter)

Resize | DeScreen removes unsightly "moire" patterns exhibited on scanned printed material (e.g. magazines). Under a magnifying glass, printed material is composed of discrete "dots" that are "screened" in a manner to give you an illusion of photorealistic colors. When scanned, these "dots" are manifested as unsightly "moire" patterns. Reversing the process (descreening) is accomplished with scanners by acquiring the image with its highest optical resolution; it subsequently melds and reduces these discrete "dots" into individual pixels composed of millions of colors -- at your desired resolution. This process of "blending the dots" frequently results is too much "blurring".

When manually descreening, use weak settings to work with 150dpi to 300 dpi scans; strong settings are appropriate for 360dpi to 400dpi scans. Use strongest setting for 600dpi scans and up. For maximum detail, scan desired image at 300dpi or 600dpi without descreening option, descreen with strong settings. Finally, **resize** the image to 50% (for 300dpi scan) or 25% (for 600dpi scan). Finally, apply Unsharp mask for fabulous results.

DESCREEN_LIGHT
DESCREEN_MEDIUM
DESCREEN_STRONG
DESCREEN_HIRES

Fix UnderExposure

See also **How To Use Image Enhancement Dialog**
RGB Levels **Fix Contrast Levels**

This group of imaging methods are assembled to correct all kinds of problems related to underexposure. Pictures that fall in this problem category include:

- low-contrast photos
- back-lit photos with dark foreground (e.g., against a window)
- dark background where details are hard to see (i.e., cast in shadows)
- high contrast shadows under very bright lighting conditions
- dark lighting or overcast conditions that required flash photography
- low aperture settings with high speed (i.e., F-stop)

The tonal range of your picture is improved by selectively increasing the brightness of shadows and midtones, or stretching highlights. In general, if your picture looks too dark or details seem to be hidden in the shadows, the following methods will fix or improve your picture. All functions include a Mask control that combines original highlights and midtones with modified image; this control lets you freely experiment with extreme settings while avoiding "overexposure". If **Lab Script** is active, modifications are tracked to replicate specific imaging processes.

Midtones, Flash Fill Add light to your picture by boosting shadows and the lower range of midtones using a gamma control that accentuates shadows. Use the Saturation control to tweak affected colors in midtones.

FLASH_FILL=<gamma>,<saturation>,<mask>
GAMMA_FILL=<red>,<green>,<blue>
GAMMA_SATURATION=<gamma>

Levels, Back Fill Improve contrast by extending highlights and color saturation. An optional gamma control adjusts midtones that were stretched in-between. These tools are highly effective with dark, low contrast photos.

BACK_FILL=<highlights>,<gamma>,<mask>
LEVELS=<shadows>,<highlights>
GAMMA=<red>,<green>,<blue>

Remap Brightness and Contrast Improve brightness and contrast via remapping controls. By default, sliders are preset with original image statistics. Typically, boosting brightness and reducing contrast will correct most images in this problem category.

MAP_RGB_HIGH=<brightness>,<contrast>,<mask>
MAP_RGB=<brightness>,<contrast>

Linear Brightness, Curvilinear Contrast The brightness control affects entire tonal range of your picture. The contrast control gradually compresses or expands tonal range. This procedure is useful in cases where you want to soften contrast after lightening a photo.

CONTRAST_HIGH=<brightness>,<contrast>,<mask>
BRIGHTNESS=<red>,<green>,<blue>
CONTRAST_CURVE=<red>,<green>,<blue>

Linear Brightness, Linear Contrast These classic controls affect entire tonal range of your picture. It is useful for correcting photos under peculiar lighting conditions or manipulating synthetic images (e.g., computer-generated pictures).

BRIGHTNESS_HIGH=<brightness>,<contrast>,<mask>
BRIGHTNESS=<red>,<green>,<blue>
CONTRAST=<red>,<green>,<blue>

Fix OverExposure

See also **How To Use Image Enhancement Dialog**
Parametric Equalizer **Fix Contrast Levels**

This group of imaging methods are assembled to correct all kinds of problems related to overexposure. Pictures that fall in this problem category include:

- lost details due to a glaring light source in the foreground
- poor contrast due to inappropriate use of full flash
- high aperture settings with low speed (i.e., F-stop)
- high-contrast photos that were equalized (over compensated) with legacy software
- photos taken with unusually bright lighting conditions

The tonal range of your picture is improved by selectively decreasing the brightness of highlights and midtones, or stretching shadows. In general, if your picture looks too bright or details seem to be "burned" in the highlights, the following methods will fix or improve your picture as long as there is data to recover. Overexposed images typically lose details in the highlights; depending on how the image was compressed, unsightly artifacts may appear when attempting to recover lost details in highlights. In general, underexposed images are easier to fix as the image data is present but hidden in the shadows.

All functions include a Mask control that combines original shadows and midtones with modified image; this control lets you freely experiment with extreme settings while avoiding "underexposure". If **Lab Script** is active, modifications are tracked to replicate specific imaging processes.

Remap Brightness and Contrast Improve brightness and contrast via remapping controls. By default, sliders are preset with original image statistics. Typically, lowering brightness and reducing contrast will correct most images in this problem category.

MAP_RGB_LOW=<brightness>,<contrast>,<mask>
MAP_RGB=<brightness>,<contrast>

Gamma Suppression Restore midtones and highlights with this custom inverse gamma curve.

GAMMA_SUPPRESS_EX=<gamma>,<mask>
GAMMA_SUPPRESS=<red>,<green>,<blue>

Contrast Compression Reduce contrast by compressing the tonal range. Under severe conditions, this tool set will minimize the nasty highlights at the cost of some data loss.

SUPPRESS_EX=<shadows>,<highlights>,<mask>
SUPPRESS=<shadows>,<highlights>

UnWash, UnCook, Attenuate Darken entire tonal range with these fixed mathematical functions. Results are similar to gamma suppression (see above) but it includes shadows and highlights.

UNWASH_EX=<mask>
UNCOOK_EX=<mask>
ATTENUATE_EX=<mask>

Linear Brightness, Linear Contrast These classic controls affect entire tonal range of your picture. Its uniform output can reverse maladjusted legacy pictures modified with the same methods.

BRIGHTNESS_LOW=<brightness>,<contrast>,<mask>
BRIGHTNESS=<red>,<green>,<blue>
CONTRAST=<red>,<green>,<blue>

Linear Brightness, Curvilinear Contrast Same as above. Contrast control gradually compresses or expands tonal range. This procedure is useful in cases where you want to soften contrast after darkening a photo.

CONTRAST_LOW=<brightness>,<contrast>,<mask>
BRIGHTNESS=<red>,<green>,<blue>
CONTRAST_CURVE=<red>,<green>,<blue>

Fix Contrast Levels

See also **How To Use Image Enhancement Dialog**
Fix UnderExposure **Fix OverExposure**

This group of imaging methods are assembled to correct all kinds of problems related to contrast - as well as general brightness and contrast tweaks. Problems that fall in this category include:

- low contrast photos
- "flat" or "washed-out" photos
- shadows that need to be darkened slightly
- highlights that need to be lightened slightly

The tonal range of your picture is improved by adjusting overall brightness and/or contrast stretching. Some functions include a Mask control that blend the entire tonal range of original image with modified image; this control lets you fine-tune modification further. If **Lab Script** is active, modifications are tracked to replicate specific imaging processes.

Contrast Levels Improve contrast by stretching shadows and/or highlights. By default, sliders are preset with AutoContrast levels. The gamma control can adjust midtones that were affected by contrast enhancement.

LEVELS=<shadows>,<highlights>
GAMMA=<red>,<green>,<blue>

Luminance Levels Improve contrast by stretching shadows and/or highlights. By default, sliders are preset with AutoContrast levels. Unlike above function, only luminance information is modified. Color saturation information is isolated. The gamma control can adjust midtones that were affected by contrast enhancement.

LIGHTING=<shadows>,<highlights>
GAMMA=<red>,<green>,<blue>

Remap Brightness and Contrast Improve brightness and contrast via remapping controls. By default, sliders are preset with original image statistics. Typically, you would adjust contrast then tweak brightness, if required.

MAP_RGB_EX=<brightness>,<contrast>,<mask>
MAP_RGB=<brightness>,<contrast>

Remap Lighting Unlike above function, only luminance information is modified. Color saturation information is isolated.

MAP_LIT_EX=<brightness>,<contrast>,<mask>
MAP_LIT=<brightness>,<contrast>

Optimize This function automatically remaps RGB values to span the entire range of shadows and highlights to enhance contrast -- white balance and hues may be affected.

OPTIMIZE_EX=<mask>
OPTIMIZE (alternate with no masking option)

Color Balance and Equalization

See also **How To Use Image Enhancement Dialog**
Color Temperature **Color Saturation**

This group of imaging methods are assembled to correct all kinds of problems related to color imbalance. Problems that fall in this category include:

- miscalibrated scanners
- miscalibrated digital cameras
- photos taken with indoor lighting (e.g., overhead fluorescent lamps) where flash was required
- photos taken with ambient, colored light sources
- legacy photos from the Internet with unbalanced colors

White Balance Manually balance colors in your photo. This is a function similarly found on video camcorders. As with video, different lighting conditions affect the overall color balance of the image. On a camcorder, you would point it to a "perfect" white wall as a reference and all colors would then be "balanced" against it. Conversely, you would click on a pixel that should be "pure gray" or "pure white"; to select a color, use the "crosshair" cursor on original image pane and click it. Adjust the Brightness control to appropriate level.

WHITEBALANCE=<red>,<green>,<blue>

Normalize, Reference Automatically balance colors in your photo via remapping controls. By default, sliders are preset with normalized or reference image statistics --i.e., a common mean and standard deviation for individual red, green and blue distributions are automatically remapped. In almost all cases, both functions result in balanced hues and saturation with evenly distributed shadows and highlights. A subsequent, moderate boost to saturation may be required for optimal enhancement. A Mask control that averages the original image with modified image is integrated for subtle color balancing.

MAP_EQ_EX=<brightness>,<contrast>,<mask>
MAP_EQ=<brightness>,<contrast>
NORMALIZE
REFERENCE

RGB Remap Manually balance colors in your photo via remapping controls. You can choose to synchronize RGB sliders to force "white balancing" or manually tune overall color temperature with separate RGB adjustments. Contrast levels for each RGB plane are unmodified.

MAP_RED=<brightness>,<contrast>
MAP_GRN=<brightness>,<contrast>
MAP_BLU=<brightness>,<contrast>

Color Saturation and Gray Shades

See also **How To Use Image Enhancement Dialog**
Color Temperature **Color Balance** **DePixelate**

This group of imaging methods are tasked with color saturation adjustments. Executable lab commands are listed in **blue**. Problems and common tasks included this category relate to:

- photos that lack color, look "dull", "faded" or "washed-out"
- photos with color casts - i.e., colors that "bleed"
- "under-saturated" or "over-saturated" images
- enhancing digital camera output with standard CCD matrices
- enhancing monochromatic images

Saturation Levels Improve color "vibrance" by extending saturation levels into highlights; extending color saturation into shadows has the reverse effect as it reduces saturation levels and is useful for reducing color casts in dark areas. By default, sliders are preset with AutoSaturation statistics. The gamma control independently adjusts color saturation in midtones.

SATURATION=<shadows>,<highlights>
GAMMA_SATURATION=<gamma>

Remap Saturation Improve saturation and levels via remapping controls. By default, sliders are preset with original image statistics. As with above function, increased contrast settings extend color saturation into highlights and stretches levels in shadows.

MAP_SAT=<saturation>,<contrast>

DeFog Minimize the ambient "white haze" from smoke or transparent material in front of a subject. The **Filter** control uses a proprietary algorithm to adjust contrast levels. The **Effect** control adjusts changes made to color saturation levels.

DEFOG=<filter>,<effect>

Naturalize CCD Correct "unnaturally" harsh colors typically generated by video or common CCD digital cameras. The **Filter** control varies the reconstruction of gray shades. The **Effect** control sets overall saturation levels for entire image resulting in a variable "film noir" effect.

NATURALIZE_CCD=<filter>,<effect>

Naturalize RGB Similar to above. This general purpose filter can "naturally" boost shadows or highlights by reconstructing the gray shades of the image.

NATURALIZE_RGB=<filter>,<effect>

True Gray Convert all pixels to gray using a specific formula that our eyes see as devoid of color saturation. This is useful, per se, for printing high quality monochromatic images -- or as an effect.

GRAYSCALE

Pseudo Gray Convert all pixels to gray using minimum or maximum RGB color components. The range of gray shades is the same used by **Naturalize RGB** function described above, devoid of color information. This is useful for advanced users that want to manually recombine gray shades with existing color information in the "Lab".

RGBMIN (optional lab command for minimum gray shades)
RGBMAX (optional lab command for maximum gray shades)

Color Temperature, Hues and Tints

See also **How To Use Image Enhancement Dialog**
Color Balance **Color Saturation**

This group of imaging methods are suitable for general color adjustments.
Independent **RGB** sliders can modify overall color temperature or tint. Executable lab commands are listed in **blue**.

HLS Color Model Adjust the overall hue, luminance and saturation of your picture.

HLS=<hue>,<luminance>,<saturation>

RGB Brightness Synchronized RGB controls adjust the black level of individual colors. By adjusting **RGB** sliders independently, overall color temperature or tint can be modified.

BRIGHTNESS=<red>,<green>,<blue>

RGB Contrast Synchronized RGB controls adjusts the amount of contrasting colors. Adjusting **RGB** sliders independently modifies color temperature in highlights and/or shadows.

CONTRAST=<red>,<green>,<blue>

RGB Shifting Synchronized RGB controls adjust overall brightness by incrementing or decrementing all RGB values in equal steps. Its effects can be viewed on the histogram as "shifting" entire frequency distribution left or right -- hence the term. Many legacy devices (and image originators) used this technique to correct color defects instead of using gamma correction. By shifting the red, green and blue planes to their "original" state you will see what the originator saw before s/he modified it; visually analyze the histogram and realign the color planes by using the shadows of each red, green and blue distribution as a references. See **ZEROSHIFT** function.

SHIFT=<red>,<green>,<blue>

RGB Gamma Fill Synchronized RGB controls lighten (or darken) midtones and shadows. Adjusting **RGB** sliders independently modifies color temperature of midtones and shadows.

GAMMA_FILL=<red>,<green>,<blue>

RGB Gamma Synchronized RGB controls lighten or darken midtones. Adjusting **RGB** sliders independently modifies color temperature of midtones and shadows.

GAMMA=<red>,<green>,<blue>

RGB Gamma Suppression Synchronized RGB controls darken midtones using a custom inverse gamma curve; it is designed to restore midtones and highlights in overexposed images. Values less than "100" have the reverse effect (i.e., lightening). Adjusting **RGB** sliders independently modifies color temperature of midtones and highlights.

GAMMA_SUPPRESS=<red>,<green>,<blue>

Noise Removal and Cleaning Filters

See also **How To Use Image Enhancement Dialog**
DeScreen **DeLace** **Enrich**

Executable lab commands are listed in **blue**.

Clean applies a proprietary algorithm to retain sharp edges (e.g., text) and variably smoothes everything else; it is extremely effective at minimizing artifacts at high compression levels. It also has a pleasing "glamour" effect for removing blemishes (e.g., fashion model portfolios). **Filter** control determines how much detail is retained. **Effect** modifies smoothing outcome

CLEAN=<filter>,<effect>

Airbrush smoothes a selected range of colors defined by a color mask. Use the color picker (cross-hair cursor in left pane of dialog) to create a color mask; the right pane shows selected range of colors. You can change the masking color by clicking the **Mask** box (in lower left side of dialog). All colors in the color mask are anti-aliased -- everything else is left alone. To modify the range of colors selected, click another color on the original image (right pane) and/or modify **HLS** control bands. Uncheck **Modified image (show mask only)** to preview smoothing results.

AIRBRUSH=<hue>,<luminance>,<saturation>

Gaussian filters applies anti-aliasing with a variable threshold. Each pixel is compared against its neighbors and replaced with the neighborhood average. This filter is effective at retaining text and fine lines. **Filter** control determines how much smoothing is applied.

GAUSSIAN=<filter>

Despeckle filters are very effective at noise removal with minimal "blurring" side-effects.

DESPECKLE=<filter> (1=mild, 9=strong)

Unspot is a variation of Despeckle filter that can selectively remove only white blemishes ("salt") or dark blemishes ("pepper"). It is effective in situations where you want to smooth only dark or light details (e.g., leave the white of the eyes sharp in a close-up shot).

UNSPOT=<filter> (-8="salt"only, 0=all, +8="pepper" only)

Outlier filters remove "salt & pepper" artifacts (noise suppression) with moderate "blurring" side-effects. **Filter** control determines how much smoothing is applied.

OUTLIER=<filter>

DeFocus filters apply a parametric low-pass convolution matrix, its effect is very subtle -- similar to changing the focus of a camera lens -- hence its label. **Filter** control determines how much smoothing is applied.

DEFOCUS=<filter>

Soften filters apply classic low-pass matrices. **Filter** control determines how much smoothing is applied.

SOFTEN=<filter> (1=mild, 10=strong)

Sharpening Filters

See also **How To Use Image Enhancement Dialog**
Noise Removal and Cleaning Filters **Automatic Image Enhancement**

Executable lab commands are listed in **blue**.

Unsharp mask is a photographic technique that enhances shadows, highlights and edges. **Filter** control determines how much detail is enhanced -- high settings can cause a "grainy" appearance. **Effect** control filter strength to avoid exaggerated contours. This proprietary implementation avoids noticeable color artifacts.

UNSHARPMASK=<filter>,<effect>

Mean removal filters apply a strong edge enhancing effect.

MEANREMOVAL=<filter> (1=mild, 5=strong)

High pass filters apply classic omnidirectional edge enhancement.

HIGHPASS=<filter> (1=mild, 3=strong)
HIGHPASSLIGHT

RGB Levels

See also **How To Use Image Enhancement Dialog**
Color Temperature **Color Balance**

RGB Highlights improve the tonal rangel of dark, low-contrast images. Use the synchronized sliders to adjust overall brightness. Change the overall color temperature (with emphasis on tinting highlights) by adjusting individual RGB sliders.

HIGHLIGHTS=<red>,<green>,<blue>

RGB Shadows improve the tonal rangel of bright, low-contrast images. Use the synchronized sliders to adjust overall brightness. Change the overall color temperature (with emphasis on tinting highlights) by adjusting individual RGB sliders.

SHADOWS=<red>,<green>,<blue>

Remap Red, Green, Blue Manually balance colors in your photo via remapping controls. You can make very fine adjustments to any **RGB** plane to manually balance the colors (or tweak color temperature) of your picture. Brightness and Contrast level controls for each RGB plane is available.

MAP_RED=<brightness>,<contrast>
MAP_GRN=<brightness>,<contrast>
MAP_BLU=<brightness>,<contrast>

Parametric Equalizer

See also **How To Use Image Enhancement Dialog**
Fix OverExposure **Fix Contrast Levels**

If you have highlights in overexposed pictures that you want to isolate and dampen, the **Parametric Equalizer** can attenuate it to make the photo more pleasing.

Parametric Equalizer boosts or attenuates color intensities with a specified **center** frequency between shadows and highlights. Like audio graphics equalizers, you specify a range of color values (**center**) between shadows and highlights as well as the **band** width. Think of shadows as low frequencies (bass) and highlights as high frequencies (treble). Boost or attenuate pixel values by adjusting the **gain** control.

Use the color picker (cross-hair cursor in left pane of dialog) to create a color mask; the right pane shows selected range of colors. You can change the masking color by clicking the **Mask** box (in lower left side of dialog). All colors affected by **gain** control are indicated by masking color in right pane.. To modify the range of colors selected, click another color on the original image (right pane) and/or modify **center** and **band** controls. Uncheck **Modified image (show mask only)** to preview results. To see a graphic representation of your parameters, click **EQ Curve** button.

PARAMETRIC_EQ= ,<band>,<gain>

To isolate any color range and change its color temperature (tint), adjust individual **RGB** planes:

PARAMETRIC_EQ_RED= ,<band>,<gain>
PARAMETRIC_EQ_GRN= ,<band>,<gain>
PARAMETRIC_EQ_BLU= ,<band>,<gain>

Tip: As overexposed images are probably the most difficult exposure problem to fix, advanced users can combine only the highlights adjusted with the Parametric Equalizer with the original image for better results.

1. Select **Lab | Duplicate** (or press Ctrl-D).
2. Select **Enhance | Parametric EQ** and dampen highlights of your photo.
4. Select **Lab | Mask Levels** to mask only the dampened highlights.

How to Remove "Red Eyes"

See also **Imaging tool bar** **Viewer Menu**

1. **Zoom in** face of subject and magnify eye.

2. Click or select **Edit | Select** tool from menu.
   Use mouse to select rectangular region with "red eye" artifact.

3. Select **Enhance | Fix Red eye** or click button.

Text Marks and Borders

See also **Viewer Menu** **Lab Commands**

This is a special image text function for writing copyright or licensing notifications on the image. It can also be used to write location information or date/time stamps;
e.g., (c) 2005 MyStudio Inc.

Associated **lab commands** are listed in **blue**.

Enhance | Add Text Mark |

Top Left	**TEXTMARK_TOPLEFT=<text>**
Top Right	**TEXTMARK_BOTTOMLEFT=<text>**
Bottom Left	**TEXTMARK_TOPRIGHT=<text>**
Bottom Right	**TEXTMARK_BOTTOMRIGHT=<text>**

How to Customize the TextMark Font

During each session a default MS San Serif font is loaded; its default color is black with a white outline. You can change the font properties (i.e., type, style, size and color) for the entire session by selecting

Enhance | Add Text Mark | Properties

A single pixel outlining each character ensures readable. If you change the font color, you should make sure the outline color provides sufficient contrast. To change outline color, select

Enhance | Add Text Mark | Outline color

To optimize readability of characters with high JPEG compression, use a lighter or darker shade of the same font color as the outline (e.g., dark blue font color with light blue outline or vice-versa).

Text Mark Variables

Inserting special character strings are treated as variables. This is particularly useful with batch imaging processes; by placing a different textmark at different quadrants, you can include the original filename, current date and copyright notice when encoding thousands of images unattended.

@@**D** inserts date in current system format.

For example, if you specify "My Holiday @@D", the actual string may look like "My Holiday 11/12/2004"; the date format is system dependent (i.e., your current Windows preference).

@@**C** inserts the standard copyright symbol -- an encircled letter "c".

@@**F** inserts original filename without path or extension. "Untitled" appears with new or pasted images.

Borders

You can merge a colored border on an image with variable height (for top and bottom edges) and width (for left and right edges). Use it to cover artifacts that appear on edges of video captures or as a final touch to your photo.

To use this function, select

Enhance | Add Border

BORDER=<color>, <width>, <height>
Width and Height are specified in pixels.

The color parameter is inserted when the function is invoked and can be copied from a previously tracked BORDER command; otherwise specify **0** for a black border.

BORDER_TOPBOT=<color>, <top>, <bottom>
This command is useful for masking unsightly scan lines (usually at the bottom) from analog vidcaps. For example, the following adds a black border with 2 pixels on top and 9 pixels at the bottom.

BORDER_TOPBOT=0,2,9

Imaging Lab: Basics

See also **How To Use Image Enhancement Dialog**
Mask Levels and Edges **Comparisons Window**

Like macros, you can "replay" repetitive color adjustments and image filters to fix your photo or apply enhancements to thousands of bookmarked images. You can sequence lab commands such that only the optimal modifications to the entire tonal range of your image are kept and recombined to result in the "perfect picture". Tweaking possibilities are limited only by your imagination. Executable lab commands are listed in **blue**.

Lab | Edit script activates a standard memo control where each line represents one lab command. When enhancing an image, frequently you would experiment with different imaging processes; in many cases, a specific sequence of modifications yields the "perfect picture" and you may not remember what that exact sequence was. When the **Lab Script** is activated, it will monitor applied image modifications and add each lab command with your specific control settings to the script. You can repeat the lab commands on similar images to yield similar results; moreover, you can save different lab commands sequences to suit different jobs.

New clears the script.
Open loads a previously saved set of lab commands.
Perform executes lab commands.
Save writes batch commands to a *.bip (batch image processing) file.

Lab | Duplicate copies the image you are viewing to a hidden image buffer which is used extensively by all Mask controls to combine bitmaps. This image buffer is semi-persistent.

DUPLICATE

Lab | Perform script executes lab commands.
Press **[F9]** for shortcut access.

Lab | Swap image exchanges the image you are viewing with duplicate image (in hidden buffer).

SWAP

Lab | Compute

Average combines viewed and duplicated image by averaging. When you cannot decide which image modification is better, you can always blend then together.

AVERAGE<mask>

Interlace mixes odd and even scan lines (fields) to restore full frames from video captures.

INTERLACE<blend>,<field> (0=odd, 1=even)

Multiply restores hidden contrast by multiplying original with duplicated image pixels. (bitmap1 x bitmap2) / 255

MULTIPLY

Subtract literally subtracts pixel values from original bitmap with values from the duplicated bitmap.

SUBTRACT

Difference shows subtle pixel changes between the duplicate and original image. No difference is displayed as "pure gray"

DIFFERENCE

[Minimum | Maximum] combines original and duplicated image by keeping darkest or lightest pixels, respectively.

MINIMUM
MAXIMUM

Imaging Lab: Mask Levels and Edges

See also **How To Use Image Enhancement Dialog**
Mask Colors **Imaging Lab: Advanced**

The following commands assume you have a duplicated bitmap
Executable **lab commands** are listed in **blue**.

Lab | Mask Levels combines shadows, midtones, highlights, contrast or luminance elements from original image with duplicated image. The **band** control modifies how much of original image is retained. The **mask control** determines the gray scale used to combine the bitmaps; where **0** use current bitmap's gray value while **99** uses gray values of duplicated bitmap. Average gray scale values can also be used by adjusting the **mask control** to values in-between. For example, if you blur a duplicated image and combine only its shadows, noise or details in the shadows can be seamlessly obscured.

MASK_SHADOWS=<band>,<mask>
MASK_MIDTONES=<band>,<mask>
MASK_HIGHLIGHTS=<band>,<mask>

Lab | Mask Edges combines edge information of duplicate image with current image. The edge information to be combined is set by the **filter** control. The **effect** control fine-tunes the combining process for more subtle results. For example, if you can blur current image and sharpen a duplicated image, both can be combined to yield a smooth image with well-defined edges.

Note: Use the duplicate and swap functions to switch between bitmaps. Ensure that the image with edge details you want to combine is in the duplicated image buffer, the smooth image should be currently viewed.

MASK_EDGES=<filter>,<effect>

Lab | Grayscale method uses the luminance information of current image to combine color information (hue and saturation) from the duplicated image.

MASK_GRAYSCALE

Lab | Mask Contrast method selectively retains high-contrast pixel elements (i.e., darker shadows and lighter highlights) by adjusting the **band** control. This method can be used to restore subtle details and boost transparency.

MASK_CONTRAST=<band>,<mask>

Imaging Lab: Color Masking

See also **How To Use Image Enhancement Dialog**
Mask Levels and Edges **Advanced Lab Commands** **Airbrush**

The following commands assume you have a duplicated bitmap
Executable **lab commands** are listed in **blue**.

Lab | Mask Colors retains pixels within a specified range of colors and combines all other from the duplicated image. The color mask excludes or includes pixels within selected color range. Finally, the blending process is modified by the luminance information of original image. For example, if you can blur a scenic photo and isolate the main subject, "depth of field" can be simulated.

Foreground method blends elements from duplicate bitmap if pixels in original bitmap fall within range of selected colors.

MASKS_HLS=<hue>,<luminance>,<saturation>

Background method blends elements from duplicate bitmap if pixels in original bitmap fall outside the range of selected colors.

MASK_HLSINV=<hue>,<luminance>,<saturation>

Lab | Create Mask creates a black and white mask that can be used in conjunction with **Mask Colors** functions described above for even greater flexibility (albeit, more complexity). Quite simply, a selected range of colors can be converted to black or white.

HLS foreground and **RGB foreground** methods create a black and white mask. All colors within range of selected colors are replaced with white -- everything else is converted to black.

REPLACE_HLS=<hue>,<luminance>,<saturation>
REPLACE_RGB=<red>,<green>,<blue>

HLS background and **RGB background** methods create a black and white mask. All colors outside range of selected colors are replaced with white -- everything else is converted to black.

REPLACE_HLSINV=<hue>,<luminance>,<saturation>
REPLACE_RGBINV=<red>,<green>,<blue>

The resulting bitmap can be used to mask grayscale information or specific colors. Included sample script **subtract.bip** demonstrates one application of such a mask. Results can also be saved to a separate file and reloaded by using a special Lab command.

LOADFILE loads (opens) a specific image for subsequent use with **SWAP, DUPLICATE** commands; it can be used to mask grayscale information or specific colors, as well as averaging a special bitmap. Image must have the same dimension of target bitmap.

LOADFILE=<pathname>
e.g., LOADFILE=<c:\pics\mymask.tif>

Imaging Lab: Advanced

See also **Advanced Lab Commands** **Comparisons Window**

Executable **lab commands** are listed in **blue**.

Lab | Advanced | Copy To Backup and **Copy From Backup** uses a spare image buffer (hidden) to save and restore current image to facilitate additional experimentation. This buffer is semi-persistent.

COPYTOBACKUP
COPYFROMBACKUP

Lab | Advanced | **Conform info** analyzes your current image and populates the Lab Script with lab commands that can be used to force another image to look like the current image. The commands are prefixed with a "**>**" character to avoid execution. If you manually edit and remove the "**>**" character, you can perform the **CONFORM** lab commands on another image.

CONFORM commands

The following functions map individual RGB planes to match the brightness and contrast levels of another image. This is particularly useful for correcting color imbalances of individual pictures in an image set to match the whole set. The **center** represents the average brightness (mean pixel intensity level) while **band** represents the contrast (standard deviation of mean pixel intensity levels).

CONFORM_RED= ,<band>
CONFORM_GRN= ,<band>
CONFORM_BLU= ,<band>

To force the luminance of an image to match another reference image, use the following command.

CONFORM_LIT= ,<band>

Using Conform Information

For example, if you view a photo in an image series that you want to use as a reference for all other images in the series, invoking the **Conform info** function will display information similar to the following in the Lab Script.

>CONFORM_RED=132,77
>CONFORM_GRN=102,66
>CONFORM_BLU=81,63
>CONFORM_LIT=109,68
>CONFORM_GAMMA_RGB=132,102,81
>CONFORM_GAMMA=109

Lab | Advanced | Zero map removes trailing bins with no intensities. RGB planes are shifted left (darkened) in an attempt to reverse modifications made to legacy images for subsequent color balancing with more appropriate methods.

ZEROMAP
ZEROSHIFT (alternate)

Lab | Advanced | Center attempts to align the peaks of RGB distributions by shifting. This typically applies to legacy images with low contrast; it will force white balancing without data loss.

CENTER (alternate)

To force the overall midtones (or each RGB plane) of an image to match another reference image, use the following command.

CONFORM_GAMMA=<target gamma>
CONFORM_GAMMA_RGB=<red>,<green>,<blue>

You can also experiment or tweak your image with normalized parameters; the following parameters brighten and minimize contrast:

CONFORM_RED=160,64
CONFORM_GRN=160,64
CONFORM_BLU=160,64

If you edit the script as follows and subsequently execute it on another image in the image series, it will have similar brightness, contrast, color balance and temperature.

CONFORM_RED=132,77
CONFORM_GRN=102,66
CONFORM_BLU=81,63

If you edit and execute script as follows, it will have similar midtones, color balance and temperature.

CONFORM_GAMMA_RGB=132,102,81

Negative inverts all colors and can be useful for testing inverse effects on image processes. If you darken the midtones of a negative image and restore the image to its "positive" state (by invoking the **negative** function again), the results are equivalent (but not the same) as brightening the midtones on a "positive" image.

NEGATIVE

Random noise places random pixels with variable densities throughout the image. RGB settings directly correlate with RGB color space. Use this function to create custom bitmaps for image correlations, background patterns or compression tests.

Add Artifacts simulates JPEG artifacts. Specify a compression level (1 to 255) to simulate compression effects and test various image pre-processing procedures to minimize JPEG artifacts at that compression level. An included script (deArtifact.bip) demonstrates one such procedure; to get a quantitative assessment of image quality see **Image Analyses**.

Posterize and Limit quantizes or reduces color depth. Reduced color depths can be used as a preparatory step to decrease the sensitivity of color masks. Notably, regions of interest are altered in surprising ways.

POSTERIZE=<BitsPerPixel>(3 to 7 bpp)

The **Limit** functions are useful for simulating overexposure or simply as an effect.

LIMIT_ALL=<shadows>,<median>,<highlights>
LIMIT_RED=<shadows>,<median>,<highlights>
LIMIT_GRN=<shadows>,<median>,<highlights>
LIMIT_BLU=<shadows>,<median>,<highlights>

See our online imaging tutorials for advanced imaging lessons.

appliedinsights.net/imaging

Imaging Lab: Comparisons

See also **Imaging Lab**

To facilitate the pursuit of the "perfect picture", advanced users can take advantage of the **Comparisons Window**. This independent window keeps two persistent images side-by-side in identical window panes. Its primary use is to inspect and compare modified images so that you can select the image with optimal adjustments. No longer do you need to open another instance or use an MDI (multiple document interface) application to compare two pictures. The Comparisons Window features fit-to-window views and synchronized scroll bars in actual view mode; when you scroll either image pane, the other scrolls in exactly the same way. The Comparisons Window can also be used to keep two modified images handy, or provide spare buffers when creating image collages.

Lab | Comparisons

Activate displays the Comparisons Window

Send to Left Pane (A) copies current image in Viewer to left pane in Comparisons Window

Send to Right Pane (B) copies current image in Viewer to right pane in Comparisons Window

Using the Comparisons Window menus

New clears both window panes

Edit | Copy
from Left Pane (A) copies image to Clipboard
from Right Pane (B) copies image to Clipboard

Edit | Paste
in Left Pane (A) copies image from Clipboard
in Right Pane (B) copies image from Clipboard

Edit | Send
from Left Pane (A) copies image to Viewer
from Right Pane (B) copies image to Viewer

View | Fit-to-Window enables a fit-to-window (pane) view for both window panes

Tools switches focus to Viewer or built-in Explorer

Note: Synchronized scrolling is enabled only if both images have the same dimensions (i.e., width and height).

Lab Commands

See also **Advanced Lab Commands** **Imaging Lab**

Each lab command has the following syntax: **COMMAND=<parm1>, <parm2>, <parm3>**
where COMMAND is the filter or operation to be applied with up to three parameters.
Click a lab command to view topic describing its use and syntax.

Automatic Image Enhancement

AUTO_REFERENCE
AUTO_WHITE
AUTO_BALANCE
AUTO_CONTRAST
AUTO_LIGHTING
AUTO_SATURATE
AUTO_FLASH
AUTO_GAMMA

Resizing / Resampling

RESIZE
RESIZE%
RESIZE%%
RESAMPLE
RESAMPLE%
RESAMPLE%%
DOWNSAMPLE
MOSAIC

Smoothing

AIRBRUSH
GAUSSIAN
DESPECKLE
OUTLIER
ENRICH
DELACE
CLEAN
DEFOCUS
UNSPOT
SOFTEN
DEPIXELATE
DESCREEN

Simple Color Tuning

HLS (hue, luminance and saturation)

Rotating / Flipping

ROTATE
ROTATE_FINE
FLIP_VERTICAL
FLIP_HOROZONTAL

Sharpening

UNSHARPMASK
MEANREMOVAL
HIGHPASS
HIGHPASSLIGHT

General Exposure & Color functions

FLASH_FILL is a high-level function that adjusts shadows, modifies luminance and saturation of midtones, and masks highlights.

BACK_FILL is high-level function that extends highlights, adjusts midtones, and masks highlights.

BRIGHTNESS adjusts black level of individual colors, with **RGB** parameters.

BRIGHTNESS_HIGH is a high-level function that uniformly adjusts brightness and contrast, and masks highlights. BRIGHTNESS_LOW is a similar function that mask shadows.

GAMMA_FILL adjusts midtones and shadows, in a curvilinear fashion. GAMMA adjusts midtones only. Both have **RGB** parameters.

CONTRAST_CURVE adjusts the amount of contrasting colors. in a curvilinear fashion. CONTRAST is a similar function that uses linear values. Both have **RGB** parameters.

CONTRAST_HIGH is a high-level function that uniformly adjusts brightness, adjusts contrast in a curvilinear fashion, and masks highlights. CONTRAST_LOW is a similar function that mask shadows.

LEVELS extends highlights and shadows. LIGHTING is a similar function that isolates color saturation.

HIGHLIGHTS, SHADOWS extends highlights or shadows, respectively, with **RGB** parameters.

SHIFT increments or decrements brightness, with **RGB** parameters.

MAP_RGB_EX is a high-level function that remaps brightness and contrast, and averages entire tonal range. MAP_RGB is the same functions without averaging option.

MAP_RGB_HIGH is a high-level function that remaps brightness and contrast, and masks highlights. MAP_RGB_LOW is a similar function that mask shadows.

MAP_LIT_EX is a high-level function that remaps brightness and contrast, isolates color saturation, and averages entire tonal range. MAP_LIT is the same functions without averaging option.

OPTIMIZE_EX is a high-level function that remaps each RGB plane for maximum contrast, and averages entire tonal range. OPTIMIZE is the same functions without averaging option.

Color Saturation & Gray Shades

SATURATION extends saturation levels.

GAMMA_SATURATION adjusts saturation levels in midtones.

MAP_SAT remaps saturation across

Color Balance & Equalization

WHITEBALANCE
NORMALIZE
REFERENCE

MAP_EQ_EX is high-level function that remaps all colors to common brightness and contrast levels, and

Contrast Suppression

GAMMA_SUPPRESS_EX high-level function that restores midtones and highlights, and masks highlights. GAMMA_SUPPRESS is the same function without masking option.

SUPPRESS_EX high-level function

entire tonal range.

NATURALIZE_CCD corrects harsh CCD camera colors.

NATURALIZE_RGB uses pseudo gray scale for 'film noir' effect.

GRAYSCALE converts to true gray shades.

RGBMAX, RGBMIN converts to pseudo gray shades using maximum or minimum RGB values.

DEFOG minimizes ambient "white haze".

Advanced Lab Commands

averages entire tonal range. MAP_EQ is the same function without averaging option.

Custom RGB Equalization

MAP_RED
MAP_GRN
MAP_BLU

Parametric Equalizer

PARAMETRIC_EQ
PARAMETRIC_EQ_RED
PARAMETRIC_EQ_GRN
PARAMETRIC_EQ_BLU

that compresses contrast, and masks highlights. SUPPRESS is the same function without masking option.

ATTENUATE_EX, UNCOOK_EX, UNWASH_EX darkens entire tonal range.

ATTENUATE, UNCOOK, UNWASH (same as above without masking option)

Advanced Lab Commands

See also **Lab Commands** **Imaging Lab**

Each lab command has the following syntax: **COMMAND=<parm1>, <parm2>, <parm3>**
where COMMAND is the filter or operation to be applied with up to three parameters.
Click a lab command to view topic describing its use and syntax.

Image Editing

CROP

Image Buffers

DUPLICATE copies viewed image to a hidden buffer used to combine bitmaps. SWAP exchanges viewed image with duplicate in hidden buffer.

COPYTOBACKUP and COPYFROMBACKUP uses a spare buffer to save and restore the viewed image for additional experimentation.

Combined Bitmaps

AVERAGE combines original and duplicate image by averaging.

INTERLACE combine odd and even fields from video captures.

MULTIPLY restore details by multiplying original with duplicate image.

SUBTRACT subtract values from original image with values from duplicate image. DIFFERENCE renders changes between duplicate and original image.

MINIMUM, MAXIMUM keep darkest or lightest pixels.

Image Mark

TEXTMARK_TOPLEFT
TEXTMARK_BOTTOMLEFT
TEXTMARK_TOPRIGHT
TEXTMARK_BOTTOMRIGHT

Combine Masked Bitmaps

MASK_SHADOWS, MASK_MIDTONES, MASK_HIGHLIGHTS, MASK_GRAYSCALE, MASK_CONTRAST combines shadows, midtones, highlights, luminance or contrast elements, respectively, from original image with duplicated image.

MASK_EDGES combines edge information from original image with duplicate image.

MASKS_HLS, MASK_HLSINV blend elements from duplicate bitmap if pixels in original bitmap fall within or outside range of selected colors.

Create Mask

REPLACE_HLS, REPLACE_HLSINV, REPLACE_RGB, REPLACE_RGBINV converts a range of colors to black or white.

Image Borders

BORDER
BORDER_TOPBOT

Advanced Remapping

CONFORM_RED, CONFORM_GRN, CONFORM_BLU match individual RGB planes by mapping brightness and contrast levels of another image.

CONFORM_GAMMA, CONFORM_GAMMA_RGB, force midtones of an image to match another image.

CONFORM_LIT force luminance levels of an image to match another image.

Correcting Legacy Images

ZEROMAP, ZEROSHIFT reverses modifications by "unshifting" legacy images..CENTER similarly tries to align RGB colors of low contrast images.

Color Experiments

NEGATIVE
POSTERIZE
LIMIT

Other Useful Lab Commands

TRUECOLOR promotes image to 24-bit color

QUANTIZE256 and **QUANTIZE16** optimally reduces image to 256-or 16 colors without dithering to create tiny PNG web graphics with extensive text (e.g., screen captures).

EQUALIZE legacy function that maps brightness and contrast to an arbitrary level, forcing all images to have similar tonal qualities; recommended only for testing and reference purposes.

REFRESH updates Viewer to ensure all changes made by image processes are reflected.

SAVE activates **Save Dialog** to avoid an additional step when tweaking a single image; this command is recommended only when making single image modifications.

RELOAD current image; useful when testing output of script.

NOMODIFYFLAG avoids being prompted to replace current modified image.

LOADFILE opens a specific image for subsequent use with DUPLICATE or SWAP to mask grayscale information or specific colors; image must have the same dimension of target bitmap.

TRACE interrupts lab command execution with a user prompt after each processing step.

PROMPT interrupts lab commands with a prompt (useful for analyzing results of individual lab commands and making iterative modifications).

PROMPTSTRING interrupts lab commands with your own comment to help diagnose imaging script -- e.g.,

PROMPTSTRING=After cleaning

Histograms & Image Analyses

See also **Viewer Menu**

Histograms show frequencies (i.e., **bins**) of pixel intensities-- from darkest (shadows) to brightest (highlights); this is the tonal range of your image. You can view distributions of each RGB or gray channel. The height of each bin is proportional to the maximum recorded intensity for any pixel. If your image has very poor contrast, the bin heights will be very "short"; you can use the **Zoom** button to magnify bins up to 800%.

You can use the bin values to set shadow and highlight cutoffs for dramatic contrast enhancement. For typical photographs, intensity distributions that cover the entire range of shadows and highlights are usually seen as more pleasing.

How to Identify Shadows & Highlights Cutoff Values

- Click on the histogram bin; a "focused line" identifies selected bin.
- Click on rightmost bin where distributions "rolloff" to identify highlight cutoff.
- Click on leftmost bin where distributions begin to ascend to identify shadow cutoff.

As the histogram represents your image's color/gray shade diversity (or gamut), it is an essential tool for optimal image processing. If red, green and blue distributions differ widely, then RGB color correction of may be required. If distributions are very narrow, then contrast enhancement may be called for. If distributions are very flat, then gamma correction is recommended. After applying any image processing function, check the Histogram to see how it affects your image. With some experimentation and practice, you will acquire a "clinical feel" for optimally enhancing your images.

Analyze function

Image | Analyze uses histogram statistics and proprietary processes to quantify the image quality. t displays the mean and standard deviation of each RGB plane and HLS plane and estimates the total number of colors, the smoothness and level of JPEG artifacting in the image. A composite signal-to-noise index is also calculated. Psychologically, images with higher signal-to-noise ratios are considered more pleasing to the viewer. This function can be used to compare two similar looking images. In general, the original image has:

1) higher JPEG quality (i.e., less JPEG artifacting)
2) more colors (if smoothness level is identical)
3) a higher Overall Rating

Image Complexity rating

Press **shift** key invoking **Image | Analyze**; to include calculation of Complexity rating. This index differentiates images by texture; the greater the texture, the higher the calculated index. This calculation can predict to what extent the image can be compressed; it is extensively used in **Advanced Image Sorts**.

Note: Advanced users that frequently compare two images can press **Spacebar** (or **ctrl** key when invoking **Image | Analyze**) to get a quick summary of the **two** images currently loaded as bookmarks immediately sent to a text file for review -- for enhanced productivity. If you press **shift-ctrl** keys then Complexity rating is included. The next bookmarked image is always used for comparison.

Slide Album

See also **Slide Properties & Views** **Slide Album tool bar** **Remote Control**

There are two kinds of supported slideshows: **bookmark slideshows** and **AVL slideshows**. The latter is a custom script that can assign individual effects and other properties per slide. You create AVL slideshows with the **Slide Album**. To activate it, select **Tools | Slide Album** (Alt-S) from Viewer or Explorer menu.

To import all supported multimedia and graphics files from any drive (or nested folders) in one step, select

Edit | Get slides from

How to Populate Slide Album with Explorer

1. Activate built-in Explorer
2. Open desired folder that contains your pictures.
3. Click **Slides** button
4. Select **Slide album**

All eligible files are imported and populate the Slide Album. From the built-in Explorer, you can also select **File | Slideshow | Slide album** or equivalent pop-up menu command.

There are two views: Details and Thumbnails. The Details view is a simple spreadsheet with each slide represented by a row. Each column represents a **slide property** which can be modified; click on any cell to modify it. To modify properties of multiple slides, select all slides (Ctrl-A) or individual slides, right-click for a pop-up menu and select slide property to be modified. You can modify slide properties of selected slides in Thumbnail view, via pop-up menu.

Note: Clicking **Header** control of the slide property column in **Details** view conveniently modifies slide properties of all eligible slides. The following header controls execute shortcuts for related Tool menu commands:

filename header = Source | Validate
comment header = Index | Populate | Comments with Filename
crc header = Index | Populate | CRC indices
user idx header = Index | Populate | User idx with Sequence
image header = Index | Populate | Image Dimensions

In Thumbnails view, slides are arranged in rows, from left to right, and can be rearranged by dragging & dropping selected slide(s) to a new position. The single-click (hovering mouse) interface is not supported in this view to allow drag&drop slide rearrangement.

As an album, each AVL slideshow maintains image information and thumbnails even when source slides reside on removable media (e.g., DVD/CD); a catalog of supported multimedia/graphics files can be made for each media volume. You can copy, move and delete slides and source file too. The Slide Album is an application by itself and sports the following functions:

File
New clears current slideshow/album and create a blank one.
Open loads a saved AVL file for editing. If the AVL file is cached, source files are not required. Otherwise, source files must be available; removable media files (e.g., DVD/CD) must be inserted to query info and generate thumbnails on-the-fly.
Explore activates built-in Explorer for browsing and file operations on source files.
Save As AVL script, AIP bookmarks or AVC catalog.
Run plays current slideshow script with Remote Control.

Edit
Select All
Select Index (selects desired slide and scrolls it into view)
Invert selection (all unselected items)
Get slides from drive or nested folders
Add slide(s) activates Open dialog to append slides to slideshow. You can also drag & drop files from built-in Explorer (or other apps) to add files to the script.
Insert slide(s) activates Open dialog to insert slides at current position
Insert CD track activates dialog to insert a CD audio track at current position
Cut slide(s) removes selected slide(s) from slideshow slides at current position
Relocate slide(s) repositions selected slide(s) to desired index

View **Thumbnails** (displays thumbnails)
Details (report format; includes slide properties)
Columns (shows/hides only desired set of columns)
Arrange by [Name | Path | Size | Date | Type | Comment]
Rank by [Pixels | Hues |Lighting | Correlation] (arranges thumbnails visually)
Sort by (advanced image sorts)
Controls | [Tool bar | Status bar | Properties box] hides or shows controls
Controls | Album mode enables source management functions and pop-up menu
Justify text reformats thumbnail labels for better fit

Query **Comment** (finds slides by associated keyword or substring in free text)
Find [Name | Next name] (searches and selects desired partial filename)
File Size, Date (searches and selects desired source files by size or date)
Find Duplicates |
Match image (compares thumbnails and shows closest match)

Index **Populate | CRC indices** fills all **crc** fields
Populate | Image Dimensions fills all **image** fields with its width, height and depth
Populate | Comments | with Filename fills comments with display name
Populate | Comments | with Pathname fills comments with UNC or path
Populate | User idx
Clear | Comments
Clear | User idx
[Copy | Swap] idx globally manipulates index fields (see **Advanced Image Sorts**)

Source **Open** (activates Viewer to view/play selected slides)
Delete (deletes selected source file)
Copy to | Move to (copies or move selected source files)
Validate checks if source files exist and removes missing source files
Album info (shows total number of files and bytes used)

Tools **[Do | Stop] Thumbs** continues or stops thumbnailing process
Redo | Thumbs refreshes selected thumbnails
Check | Thumbs validates and creates new thumbnails if necessary
Tile (optimizes Viewer and Slide Album windows on desktop)

Using the Slide Album as a Database (or WorkSpace)

See also **Slide Album** **Slide Properties & Views**

The Slide Album has database capabilities -- multiple sort and query options. Unlike a database, you can manually resequence slides (i.e., as a workspace). Use it to:

- move, copy or delete files from multiple folders
- facilitate reviews to keep only the best images
- find and delete duplicate files residing in multiple folders or drives on your computer.

How to Add Slides from Multiple Folders

Select **Edit | Get slides from** to recursively add all eligible files as slide from selected drive or folder. Similarly, you can use the built-in Explorer to navigate and recursively import slides by selecting, from Explorer menu **File | Slideshow | Slide album**.

Select **Edit | Add slides** from menu for dialog to selectively add slides (or insert slides, with shift pressed); you can select multiple files at a time.

You can also drag & drop files from built-in Explorer, Window's Explorer and other applications.

How to View Selected Slides in Viewer

Select desired slide(s); click **View** button. Selected slides are viewed in original sequence. You can also double-click or press **enter** key after making your selections. To return to Slide Album, from Viewer menu, select **Tools | Slide Album** (or **Alt-S**).

Tip: The Viewer can export its bookmarks to the Slide Album as slides. This facilitates switching back and forth between Viewer and Slide Album with edited listings (i.e., reflecting additions, deletions or resequencing).

- From Viewer menu, click **Bookmarks** button and select **Album** (or **File | Bookmarks | Album**).
- From Slide Album menu, press **[F5]** or select **Source | Validate** to cut deleted, moved or renamed slides in Slide Album.

How to Find The Closest Match

1. Select a desired thumbnail; click it to highlight.
2. Select **Edit | Match** or press **F12** key.

The "closest" match will be selected; subsequently, the Viewer is activated with both images bookmarked. Click

Album mode enables delete/recycle and move/copy functions applied to source. A different pop-up menu also appears when you right-click on selected slides; instead of slide properties, source management commands are presented and enabled. There are no prompts to confirm any sort (arrange command) for enhanced productivity. Aside from toolbar button, you can enable **Album mode** by selecting **View | Controls | Album mode**

How to Copy, Move or Delete Source Files from Multiple Folders with Slide Album

1. Add slides (files) from multiple folders (see above).
2. With **Ctrl** key pressed, click desired slides to highlight.
3. To delete, select **Source | Delete** (or **Del** key). Select **Source | [Copy to | Move to]** to copy/move.

Delete and **Copy** buttons work similarly. For **Move** operation, click toolbar with **shift** key pressed. Also, if **shift** key is pressed, **Delete** function avoids Recycle Bin.

How to Remove Redundant Slides

Select **Query | Duplicates | by Pathnames** to remove redundant slides for subsequent image matching and duplicate detection, as slideshows can have redundant slides (e.g., blank slides for fade-in/fade-out effects).

How to Find Exact Duplicates

Select **Query | Duplicates | by CRC**. to position Identical files beside each other. Switch to **thumbnail view** and apply Move, Copy and Delete operations.

How to Find Modified Duplicates

Select **Query | Duplicates | by Image**. to position visually similar files adjacent each other. Depending on the speed of your computer and number of slides in your album, the process may take a few minutes or a few hours**.** Resized or recompressed images are not identical; as such they are difficult, but not impossible, to identify. See also **Image Matching & Ranking**.

How to Query by File Date and/or Size

Select **Query | File Date, Size** and enter desired search parameters. Check **Modified between** box to search file dates or **Size is** box to search by file size. If you check both boxes, files that meet either criteria will be included in search. The search results in highlighted slides.

Viewers' **Next** toolbar button (or **PgDn**) to compare the images. Select **Tools | Slide Album** or (**Alt-S**) to return to Slide Album. You can also select

View | Rank by | [Pixels | Hues | Lighting | Correlation]

to reorder all images by different image matching criteria.

If you previously saved the album as a "master set", unselected items can be removed to treat search results as a subset. If you save this subset with a different filename, it can be pruned and edited without modifying the "master album". To remove deleted, moved or renamed slides press **[F5]** or select **Source | Validate**.

How to Query Comments

The **comment cell** can be used to select all slides containing keywords or substrings. To assign keywords to one or more selected slides, invoke **Comment** function from Properties bar or pop-up menu.

You can also automatically populate all comment cells with filenames (or pathnames) for substring queries.

1. Select **Index | Populate | Comments with Pathname**.
2. Select **Query | Comments** and enter partial filename.

Slide(s) found are highlighted. To facilitate review, you can select **Edit | Reposition slide(s)** to relocate selection at first slide position. Pressing **Home** key jumps to the first slide in your album.

How to Use Comments to Sort Slides

You can automatically populate all comment cells with EXIF Datestamps and sort by DateTaken. Select **Index | Populate | Comments with EXIF Datestamps**

Select **View | Arrange by | Comments** to sort slides by comment. Since the sort is alphabetical, you can use that aspect to rate your images. Images you rated "higher" will appear first. No rating (blank comment) is always treated higher in alphanumeric sorts. If first character is a rating followed by descriptive keywords or secondary rating, then sorting will follow accordingly. For example, if you have four files with the following keywords "A_Landscape", "A_Nude", "B_Nude", the sort will show images with "A" rating at the top, and so forth. To query comments for keywords, select **Query | Comments**

Image Matching & Ranking

See also **Slide Properties & Views** **Advanced Image Sorts**

Image matching finds another image that "looks like this". It weighs the differences between image thumbnails (which represent the full image) and selects the thumbnail with the least difference as closest -- both images are subsequently sent to the Viewer for closer inspection. It will find duplicates with different names, file dates and sizes.

The Slide Album can also visually compare and arrange thumbnails against a reference thumbnail. To rank images visually, click a desired thumbnail, then select

View | Rank by

Histogram to arrange by similar color distributions.
Pixels to arrange by (default) brute force.
Correlation (coefficient of HLS values)

Academic Note: As Pearson r coefficients are used for sorting, optional **user idx** values (see below) are represented between 0 and 999999999, where 0 is as a perfect correlation (r =1.0). Negative correlation coefficients do matter and nicely fit into the scheme of sorting image differences; coefficients greater than **1000000000** are negative (i.e., 2000000000 is equivalent to r=-1.0).; You can use the following formula to derive the actual correlation coefficient (both negative and positive).

1 - (User idx / 1000000000)

If you simply need to find duplicate images quickly, select **Query | Duplicates**

by Pathnames to remove redundant slides (e.g., blank slides to create fade-in, fade-out effects) for subsequent image matching and duplicate detection. If you have a master slide album (with all your images), adding slides from an updated folder (e.g., new downloads) may include slides that are already in your master album; this function will remove redundant slides and retain slides with CRC and user index information.

by CRC to calculate redundancy codes for all source files and sort accordingly; exact duplicates appear beside each other (thumbnails are identical). Unique slides are pruned from the slide album; to avoid recalculating CRC codes, you can invoke **Index | Populate | CRC indices** then save the album prior to calling this function.

by Image to automatically extracts image dimensions and calculate image differences based on correlations and image complexity. All images are subsequently sorted with potential duplicates adjacent or beside each other. Advanced users can apply different steps and criteria to fine tune the process; see **Advanced Image Sorts**. Note: Visit our Web sites for organizing tips and tricks.

by Neighborhood to utilize information in current (or saved) album that was sorted with **Query | Duplicates | by Image** function. Unique slides are pruned from the album.. When invoking this function, you are prompted for a **match tolerance** value; higher tolerance values will retain more potential duplicates while lower values increases the accuracy of image matches (at the cost of missing obscure duplicates).

Processing Options

The following options directly impact image ranking results and processing speed. Each filter will reduce or increase image ranking resolution and accuracy. The effect of each filter is cumulative (order is determined by the program) and adds substantial computing overhead to the ranking process.

Fuzzy logic - our tried and tested algorithm (enabled by default); overall results are balanced with reasonable and consistent accuracy.

Gaussian filter - reduces resolution by averaging pixels neighborhoods; use it to find a wider range of image matches.

Median filter - reduces resolution by replacing pixels with its neighborhood median; use it to find a wider range of image matches.

Mean removal filter - increases resolution by sharpening edges; use it to limit range of image matches.

Posterize filter - reduces resolution by globally quantizing RGB values; use it to find a wider range of image matches.

Attenuate filter - compresses shadows but boosts highlights; use it to limit range of image matches.

Exclusion Options

To accelerate image ranking and matching, you can apply exclusion rules. Images that meet exclusion criteria are not processed thereby speeding up the ranking process; excluded slides are left in their original position (index); only included slides are ranked and sorted.

Aspect ratio - Images with different aspect ratios are rejected (excluded). A reference image with 640x480 dimensions will obviously differ from a 320x800 image and need not be included in the ranking or comparison. You can set a **threshold** to included slides with aspect ratios that differ only slightly -- e.g., a low setting will include a 638x460 image if the reference image has a 640x480 aspect ratio.

To use this option, image dimensions of source material must be captured. You can click the **image** column header (when viewing slides in report mode) to populate image dimensions or from Slide Album menu, select

Index | Populate | Image Dimensions

User idx - This is a free index that can be populated with any numeric comparison result. By enabling **Populate with image match results** from the options dialog presented before each image matching or ranking process, a number representing the nominal image difference from reference image is captured for each slide. You can use the **user idx** number to exclude slides that differ significantly. You can also set a **threshold** to included slides with a **user idx** that differ only slightly.

Exceptional processing gains are apparent when used with **Correlation** results. For example, you can use the **black.png** image (included in application folder) or create a random image as a reference image and add it to the Slide Album; after ranking by Correlation (with **Populate with image match results** enabled), cut the **black.png** (or random image) slide from the Slide Album; thereafter, you can use the **user idx** to differentiate one slide from another -- as such you can include only images with similar correlation coefficients. For your convenience, you can also select

Index | Populate | User idx with Blind correlation

Advanced Image Sorts

See also **Image Matching & Ranking** **Slide Properties & Views**

For basic sorts (arrange), select **View | Arrange by |**

Name (by Display name)
Path (by location)
Size (by file size)
Date (by file last modified date)
Type (by file extension)]

Reverse order (current sequence in descending order)

Comment (user text data)

User idx (by free index populated with numeric comparison result)

CRC (by redundancy code)

Aspect (ratio) arranges by image orientation (portrait vs. landscape) relative to its dimensions. Images are assumed to have 1:1 square pixels (i.e., for computer monitors and printers).

Advanced sorts
The following sort the contents of key fields (priorities are arranged from left to right).
It assumes you have correctly populated key fields; no validation of field content is performed.

Size, CRC
The File size field is hidden and read-only; it is visible from statusbar when slide is selected. The **crc** field can be populated by selecting **Index | Populate | CRC indices** (only empty fields will be calculated.); selecting this command with **shift** key pressed refreshes all calculations.

Aspect, User idx
Aspect calculations require the **image** field, which is not populated when thumbnails are cached. To ensure all **image** fields are populated, select

Index | Populate | Image Dimensions

to calculate only empty fields; selecting this command with **shift** key pressed refresh all calculations. The **user idx** contains results of latest **image ranking**; you can also select

Index | Populate | User idx with

- **Blind correlation** (compare a standard pattern
- **Complexity rating** (compare texture)

Width, Aspect, User idx
Same as above with **image width** inserted as primary key.

User idx, Extra idx
Enables you to use two free indices. To populate **extra idx** and free the **user idx** for another ranking process, select **Index | Copy User idx to Extra idx**. To facilitate experimentation and maximum flexibility the following commands are available:

Index | Copy Extra idx to User idx
Index | Swap Extra idx with User idx

Aspect, User idx, Extra idx
Same as above with **aspect ratio** inserted as primary key.

User (MSB) idx, Extra idx
Lets you use two free indices; only most significant bits (MSB) of **user idx** are used to cut resolution of primary key for enhance differentiation by secondary key. The **user idx** will have no effect if it is populated with "low" numeric indices (e.g., sequence); it is designed for use with correlation coefficients and complexity ratings.

Aspect, User (MSB) idx, Extra idx
Same as above with **aspect ratio** inserted as primary key.

Neighborhood match
As our proprietary algorithms calculates in minutes, what could take weeks to process by brute force; a small percentage of matches may be positioned adjacent (plus or minus 5 to 10 slides) rather than beside its perfect match. This function matches and rearranges adjacent slides by brute force -- as such, it should be used sparingly. A setting of 10 neighboring slides is recommended.

Slide Properties & Views

See also **Slide Album** **Distribute Slideshow on DVD or CD**

When in Report view (Details), you can hide or show certain columns to focus on the task at hand; select **View | Columns |**

All properties to show all columns
Slide properties only for slideshow-related properties
Image properties only for album management and sorting tasks

Slides are arranged in rows, from left to right, and can be rearranged by dragging & dropping selected slide(s) to a new position. The properties bar or (popup properties menu) modifies properties of selected slide(s). Report view columns correspond to slide properties.

filename is source file; full pathname appears on Status bar (with additional file info).

color paints background with assigned color. Auto setting retains previous background for transitions.

effect assigns one of 173 transition effects.

wait (in seconds) adds a delay to end of a slide, you can set this value to maximum and **right-click** during slideshow to manually advance slides (e.g., presentations). Enable **AVL jukebox** option to play complete audio files before advancing slideshow.

zoom magnifies image or video from 25% to 400%**.**

gamma adjusts image midtones.

pos [x,y] positions graphics or video file (in pixels) on slideshow display; if video or image exceeds slideshow display boundaries, it is resized and centered with correct aspect ratio.

panel [w,h] forces image or video to fit the specified width and height. The position of the rectangle is specified by **pos [x,y]** properties above.

rotate modifies image orientation by specified degree (e.g., 90 degrees, flips a portrait to landscape). Black is used to render background if no background color is assigned to the slide.

comments shows one line of text at top or bottom of screen (see **text position**) during slideshows and covers the width of the display; if this property is filled, text is always shown during slideshow -- this property is searchable and can be used for keywords.

Specialized image properties (fields) are also included for each slide.

image - This field holds image dimensions (width and height); it is extensively used by image sorts and rankings requiring aspect ratio calculations.

CRC - This is redundancy code used to identify duplicates.

User idx - This is a free index that can be populated with any numeric comparison result; it typically holds the results of image ranking calculations.

Extra idx - This is a free index similar to **User idx** that can be used as a secondary sort criteria.

Distribute Slideshow on DVD or CD

See also **Slide Album** **Slide Properties**

How to Create DVD/CD Slideshows.

You can create and distribute multimedia slideshows on DVD (or CD) to all your friends and relatives with ease.

1. Create a slideshow with the **Slide Album**.

2. When you are satisfied with the way it runs, select **Files | DVD/CD slideshow** from the Slide Album's menu.

3. You are prompted for a temporary folder; select an empty folder for DVD/CD mastering. Click **Ok**.

Your slideshow script, source files and necessary runtime files are copied to the temporary target folder. Burn the contents of this folder to a writeable DVD or CD media. After burning the DVD or CD, you can delete the temporary folder to free disk space on your computer.

If your friends and relatives are using Windows XP, you can generally assume they have multimedia support to play digital video files. If you do not know what version of Windows they are using, create and distribute slideshows with pictures and audio only; all the necessary graphics support is included on the DVD or CD.

When burning your DVD or CD, burn the contents of the temporary folder. You will see the following files and folders inside the temporary folder.

autorun.inf (this makes the slideshow run automatically)
autorun.avl (this is your slideshow script)
avlrun.exe (this runs the slideshow)
imgman32.dll (required by runtime)
im31bmp.dil (required by runtime)
im31pcx.dil (required by runtime)
photocd.dll (required by runtime)
My Pictures
More Pictures

These are the contents that should be burned, not the temporary folder itself. Typically, you select all of the above and drag and drop it into a DVD or CD writing application window. The folder names in **red** will vary with your slideshow; these are copies of your source multimedia folders which include only source files used in your slideshow.

EXIF Datestamps & JPEG Text Utility

See also **Text Mark** **Image Comments**

EXIF information is typically included with all current digital cameras (e.g., Exposure and Shutter settings). Of particular interest are datestamps, which are very useful as sorting criteria. Both the built-in Explorer and Slide Album include facilities to sort by DateTimeOriginal field or DateTime (if DateTimeOriginal is missing).

- DateTime - usually the same as DateTimeOriginal (may differ if file is modified or exists by itself)
- DateTimeOriginal - date and time picture was taken by the digital camera
- DateTimeDigitized - usually the same as DateTimeOriginal

The built-in Explorer can add EXIF Datestamps as file comments for sorting in Details view. To add EXIF dates (as comments) using the built-in Explorer, select (from Explorer menu)

File | Comments | Add EXIF Datestamps

The built-in Slide Album can add EXIF Datestamps as file comments for sorting. The Slide Album can sort up to a million files (visually by thumbnail) from multiple folders or drive volumes (even offline volumes). To automatically populate all comment cells and sort by DateTaken, select (from Slide Album menu)

Index | Populate | Comments with EXIF Datestamps

The **JPEG Text Utility** reads standard JPEG comments and EXIF information into a standard **memo control**. You can also, add or remove JPEG comments, as well as remove all non-essential JPEG markers. This utility supports the following menu commands:

Read selects a new JPEG file and extracts EXIF info and JPEG comments, if any.

Add text embeds text (in memo control) as a standard JPEG comment. You are prompted to select a file to embed the JPEG comment (e.g., copyright notice/warning, other image details). The text in memo control can be added to multiple files -- just select a new JPEG file. Note: If you read a JPEG file with EXIF info or JPEG comments, text in the memo control changes.

Strip | All Extra info prompts you to select a file to remove all non-essential JPEG markers (e.g., APP markers). This function can dramatically shrink a JPEG file. Also, use this function to remove problematic makers and Mac (Apple) binary headers (which causes less tolerant viewers to fail).

Strip | Comments Only prompts you to select a file to remove JPEG comments only. Use this function to erase previous comments (e.g., for subsequent replacement with edited comments in memo control). All other application markers (e.g., EXIF info) are retained.

Important: The original file is copied to a *.bak file when **Add text**, or **Strip** functions are used. **You can restore the original by deleting the modified file and renaming the *.bak file to *.jpg.** As the *.bak file is the only way to restore the original file, you are prompted to overwrite existing *.bak file before subsequent modifications to the same file. Mac (Apple) binary headers are automatically stripped.

Batch Files

See also **Viewer Menu** **Imaging Lab**

You can save/convert, move, recycle or rename thousands (or millions) of images unattended. The status bar indicates how many images are bookmarked. To save/convert bookmarked files to desired file format, select

Files | Batch files | to ... (file format)

If **Lab Script** is active, all images are modified by your lab commands before encoding; this is a very powerful feature as it will enhance all bookmarked images (unattended) then save results in desired file format (e.g., JPG). For example, you can fix overexposure, adjust color saturation, add a border and copyright notice, then encode thousands of JPG files for publishing on the Web.

To add files to bookmarks, use built-in Explorer to open/view multiple files and replace all current bookmarks. Or, select multiple files via Open dialog or drag & drop files from other applications.

How to Batch Compress or Convert

1. Select **Files | Batch files| to ...** from Viewer Menu;
2. Review eligible bookmarked image files.
3. Click **Ok**, and select a target folder to output files.

When experimenting with lab commands saving to BMP is recommended for speed as files will be uncompressed (albeit large)). Exporting to PNG is recommended for archiving images in lossless format as well as publishing images on the Web. For archiving, you can also export to TIF as it uses standard deflate compression (similar to PNG). If you intend to read/edit TIFs with Adobe PhotoShop and ImageReady (which expects their own compression tags), you must export them individually -- select (from Viewer) **File | Save As** and specify (Deflated Adobe TIFF) in "Save as type" field of Save dialog.

Batch files | DateRename

Renames all bookmarked files with file datestamp using YYMMDD_HHMMSS format; the datestamp is added as a filename prefix if there are filename collisions. Alternatively you can press **Shift** key while invoking this function to force datename to be prefixed to original filename.

Batch files | Move relocates all bookmarked files to a selected folder. You can also click

Copy/Move toolbar button with **Ctrl** key pressed. **Ctrl-M** can also be used (see **Hotkey**).

Batch files | Rename

Renames all bookmarked files with a sequential numeric suffix (e.g. img001.png to img999.png) using your specified base filename. Alternatively, if you press **shift** key while invoking this function, a numeric prefix is prepended (e.g., 01~whatever.jpg) to original filename.

Batch | Delete recycles all bookmarked files. You can also click

Recycle/Delete toolbar button with **Ctrl** key pressed. **Ctrl-Del** can also be used (see **Hotkey**).

Image Editing, Collages and Viewports

See also **Batch Files**

How to Crop an image selection

1. Define a marquee.
2. From Viewer's menu, select

   Edit | Crop

If **Lab Script** is active, the marquee used to crop image is recorded as a lab command that can crop thousands of similar files in exactly the same manner (unattended).

CROP=<TopLeft>,<BottomRight>

How to Paste an image selection

1. Define a marquee.
2. From Viewer's menu, select

   Edit | Paste | Selection

How to Copy an image selection

1. Define a marquee.
2. From Viewer's menu, select

   Edit | Copy | Selection

How to Create Collages

1. Activate two instances; use one to view and copy images and the other to paste. Select **File | New** to create a blank image.

2. Press **Alt-Tab** key to switch to the other instance and view an image, then select

   Edit | Copy | Image

3. Press **Alt-Tab** key again to switch to the other instance (with Untitled image), then select

   Edit | Paste| Grid

   Click any cell to highlight, then click **Ok** to paste image in selected cell. Repeat steps 2 and 3 for the remaining cells.

Note: Select **Edit | Marquee** to reuse coordinates or fine-tune a marquee with odd regions (e.g., three image collage). **Grid Select** dialogs conveniently define marquees for repetitive coordinates; change the **rows** and **columns** for various types of collages - e.g., a grid with one row and two columns can contain side-by-side portraits.

How to Adjust an image selection

Select **Edit | Marquee**.

By default, the dialog is populated with dimensions (**width** and **height**) and origin (**x pos**, **y pos**) of your current marquee. Otherwise, the full image is specified.

Use the up/down spinners to tweak the values or enter a new value in each **edit box**. Manually edited values are validated when you press <enter> key. Press the dialog's **Reset** button to restore original marquee dimensions and coordinates.

If you change the origin of the marquee such that the width or height exceeds image boundaries, the origin is modified to ensure that it does not exceed image boundaries. For example, if you have a 1000x700 image with 800x500 marquee, changing x origin (**x pos**) to 201 will be validated as 200. Likewise, if you change the width or height of marquee and it exceeds image boundaries, it is lowered accordingly.

If the full image is specified (default), reduce the width and/or height of marquee before adjusting the origin. Otherwise, increasing origin values will not be allowed (when validated) as it will always exceed image boundaries.

How to Use Viewports

The **Hand tool** can be used to scroll an image in a viewport that in effect acts as a region of interest.

Instead setting a marquee, you intuitively scroll the image in the viewport with the **Hand tool** to copy the region of interest for subsequent editing operations (e.g., collage creation, cropping). Manually resize the viewing window or conveniently select

View | Adjust | Viewport

to precisely resize the viewport. For example, if you want a cropped 512x768 image from an original 2160x1440 photo, you would adjust viewport to desired dimensions -- in this case, 512x768. Using the **Hand tool**, scroll the image until only the desired region is displayed within the viewport. When you are satisfied with what is displayed, select

Edit | Copy | Viewport

to copy the desired region of interest. Once copied to the clipboard, you can paste the region of interest in a collage (or other application) or simply select **Edit | Paste | Image** to effect a cropping operation.

File Formats

This version supports:

- ***AIF**
- ***APE**
- ***ASF**
- ***AU**
- ***AVI**
- **BMP**
- ***CD audio**
- ***DAT**(VideoCD)
- **DCX**
- **DIB**
- ***EMF**
- ***FLAC**
- ***GIF**
- **JPG**
- ***M1V**
- ***MID**
- ***MOV**
- ***MPG**
- ***MP2**
- ***MP3**
- ***MPV**
- ***M4A**
- ***OGG**
- **PCD**(Photo-CD)
- **PCX**
- **PNG**
- ***PSD**
- ***QT**
- ***RA**
- ***RM**
- ***RMI**
- ***RTF**
- ***SND**
- **TGA**
- **TIF**
- ***TXT**
- ***WAV**
- ***WMF**
- ***WMA**
- ***WMV**
- **ZIP**

*view or playback only

Frequently Asked Questions (FAQ) & Answers

Select **FAQ (ReadMe)** from your task bar; this text file covers compatibility issues (if any). You can access updates and other resources from our Web page(s); select **Help | Web page** or visit

appliedinsights.net

JPEG (Joint Photographic Experts Group)
JPG files contain 24-bit color (or 8-bit gray) images. With variable compression, you can encode files with "near-lossless" quality or tiny files with negligible loss. Progressive JPEG (read/write) is supported (useful for creating Web pages).

AVI (Audio Video Interleave)
These are Windows video or animation files (usually with audio). All flavors are supported; use MediaPlayer's upgrade function to check for new codecs (compressor/decompressor). In particular, check for new DIVX and MPEG codecs (they change often).

WMV (Windows Media)
These are Windows video (WMV) or audio (WMA) files. Downloaded files (not streamed from the internet) are supported. Use MediaPlayer's upgrade function to check for new codecs (compressor/decompressor) or upgrade to MediaPlayer 7.1 (or later).

ASF (Active Streaming Format)
These are legacy Windows video files replaced by WMV format. Downloaded files (not streamed from the internet) are supported.

MIDI/RMI (Musical Instrument Digital Interface)
These are music files that play predesigned instruments mapped to your Windows audio device. Sound quality will depend on your audio card.

MOV/QT (QuickTime MOVie)
These are Apple (Mac) video or animation files (usually with audio). Quicktime 1 & 2 are supported; QuicktimeVR and QuickTime 3 codecs (e.g., Sorenson, QDesign) are not yet supported -- use MediaPlayer's upgrade function to check for new codec (compressor/decompressor).

MPEG (Motion Pictures Experts Group)
These are audio and video multimedia files. Files with MPG, M1V, MPE, MPV, MPEG are usually audio/video files. Most are encoded with MPEG-1 compression (same as VideoCD). **MP3** and MP2 files are supported audio files compressed with MPEG-2 compression variants. ".DAT" files (on VideoCDs) are MPEG-1 streams. Since ".dat" is generically used by many applications for "data" it is available when you explicitly select it from the OpenDialog (i.e., VideoCD filter). Opening *.DAT files that are not MPEG-1 streams will result in a non-fatal error.

MPEG-4 audio (**M4A**) boasts greater compresion over MP3 files. This audio format gained extreme popularity with Apple's iPod. Encrypted content are typically distributed with ".m4p" or ".m4b" extensions. By convention, ".m4a" files are unencrypted and can be played with popular codecs. Download and install the latest codec pack to play these files or use MediaPlayer's upgrade function to check for new codec (compressor/decompressor).

PNG (Portable Network Graphics)
PNG embodies advanced features of the aborted GIF24 format (i.e., lossless 24-bit color). It is patent-free and compresses 256-color images to 40% smaller than GIF. Progressive PNG (read/write) is supported.

GIF (Graphics Interchange Format)
CompuServe's popular graphics file format which now fills the Internet; its supports multiple B&W to 256-color images. There are two versions - GIF87a and GIF89a. Both support multiple images for rudimentary animation; the first image is decoded.

AU/SND (Sun AUdio)
These are Sun audio files usually found on the Internet.

PCX (Paintbrush)
PCX files originated with Zsoft's Paintbrush program and supported only 16 colors; it quickly became and industry standard and supports up 24-bit color. Files are uncompressed or run-length encoded.

PSD (Photoshop)
PSD files are native PhotoShop image formats that support up 24-bit colors. Supported variants include Paletted, TrueColor, CMYK, Multi Channel, DuoTone, CIE and Lab. Files are uncompressed or run-length encoded.

DCX (Intel Fax)
These are multiple-page PCX files (run-length encoded) originating with Intel's fax hardware and software. This version includes support for reading multi-page fax files.

PCD (Kodak Photo-CD)
This 24-bit color format is composed of Image Pacs on CDROM with resolutions up to 4096x6144 with Pro Photo CD. Catalog Disks can store 6000 images at lower resolutions. Since Pro resolutions require 75 Mb per image, base resolution (512x768) is always the default. To change Viewer's resolution ...

1. Select **View | Options**
2. Click **Graphics** tab
3 Change **Photo CD step**

Image is reloaded if currently viewed. Encrypted images are avoided for uninterrupted slideshows; only permitted resolutions are decoded. Select **Image | Info** for details and available resolutions.

RA (RealAudio) & RM (RealVideo)
These multimedia formats originated over the Internet and must be downloaded completely to your local hard disk for playback. RAM and RMM files are streaming formats (i.e.; require an active Internet connection); if you created these files, you can rename them to *.RA and *.RM respectively for local playback. Legacy RA and RM files are supported by Viewer's MediaPlayer interface; default associated player is activated for playback when files are activated from AiPICT Explorer.

RTF (Rich Text Format) & TXT (Text)
RTF files are text documents with variable font size, color and styles. TXT (text) files are regular ASCII documents with no formatting. Both formats are used primarily in AVL slideshows. You can use the Viewer to view then, but only the portion that fits current Window size is rendered. Use WordPad or wordprocessor to create these files.

TIF (Tagged Image File Format)
TIFF was originated by Aldus to be a universal format; it supports B/W to 24-bit color files; this version reads all TIFF 6.0 flavors (except LZW-compressed images). Support includes TIFF deflate (ZLib) compression and variants created by Adobe ImageReady and PhotoShop.

TGA (Targa)
Originally created for Truevision's products, this format supports 256-colors, 16-bit, 24-bit and 32-bit color files (uncompressed or run-length encoded). Read and write support is included. Note: If you save an image with less than 256 colors, it will be automatically promoted to 256 colors.

WAV (Waveform Audio)
These are Windows digital audio files.

WMF (Windows MetaFile)
These are Windows vector graphics which may also contain a bitmap. EMF (Enhanced MetaFile) is an improved format of the same. Both WMF and EMF files are supported and converted to bitmap format prior to display so that subsequent conversion as well as display effects are possible. Default Windows color scheme is used for background; AVL slideshows can assign a different background per slide.

ZIP (Compressed Archive)
This format was originated by Phil Katz to replace his popular ARC (Archive) file format. It has become the most widely accepted archive format for backups, Shareware dissemination and distributing a series or set of images. Its patent-free deflate algorithm is also used by PNG files.

FLAC (Free Lossless Audio Codec)
This lossless audio file format was authored by Josh Coalson and has become the most widely accepted archive format for lossless audio archives. Audio files compressed in this format are exact reproductions of CD audio files with 30% to 50% compression savings. FLAC is a free, open source, royalty-free file format that is suitable for portable players. Download and install the latest codec pack to play these files or use MediaPlayer's upgrade function to check for new codec (compressor/decompressor).

APE (Monkey's Audio)
Monkey's Audio is a lossless audio file format, similar to FLAC, with greater compression levels. File encoded with the format are typically identified with ".ape" as its file extension. As the extension suggests, audio is reproduced exactly; APE codecs are not open source or royalty-free, but typically distributed as freeware. The main advantage of APE is greater compression compared to over FLAC; it is however, more difficult to implement on portable players. Download and install the latest codec pack to play these files or use MediaPlayer's upgrade function to check for new codec (compressor/decompressor).

OGG (Vorbis Container)
Files with the ".ogg" extension are containers for lossless or lossy audio data. Audio data can be compressed with a lossless formay (e.g., FLAC) or lossy format (e.g., MPG). OGG is being promoted by the *Free Software Foundation* "as an ethically, legally and technically superior audio alternative to the proprietary MP3 format."

AIFF/AIFC (Apple Audio)
These are Apple (Mac) audio files.

memo control
The memo control shows and edits plain text -- it behaves like a typical Windows text editor (i.e., you can type and edit text in the control. Text selection is accomplished via mouse drags (i.e., from start to end of desired text) or by using the edit keys (e.g., PgUp, PgDn, Home, End, left and right arrow keys) with **shift** key down.

Del deletes selected text.
Ctrl-A selects all text.
Ctrl-C copies selected text (in memo control) to Windows clipboard.
Ctrl-V pastes text from Windows clipboard and replaces selected text in memo control. Note: Plain text can be pasted from other apps (e.g., Wordpad) if you copy it to Windows clipboard.

Viewer Tool bar

See also **Imaging tool bar**

Main tool bar functions

Explore (Ctrl+E) activates built-in Explorer
Open an image or multimedia file
Save current image to desired format
Print (Ctrl+P) current image
Copy or **Move** (with shift key pressed) selected source file(s)
Recycle or **Delete** (with shift key pressed) selected source file(s)
Info shows image info, EXIF and JPEG comments (if any)
Full screen (Alt+Enter) shows full screen image
Adjust window resizes window for optimal viewing
Fit To Window (Ctrl+F) fits image to window

Zoom slider changes magnification from 25% to 800%.

View next page cycles through and views the next page of multipage fax;
Shift-PgUp, Shift-PgDn, Shift-Home and Shift-End keys can also be used to navigate.

Path box functions

Previous | Next image cycles through and views images in **bookmarks** list box (adjacent).
PgUp, PgDn, Home and End keys can be used to navigate (e.g., in Full screen). Viewed files (or multiple files loaded via dialog or drag & drop) are tracked; you can even run instant slideshows with bookmarked files. Each instance tracks its own bookmarks.

Slideshow (runs bookmarks as instant slideshow)
Bookmarks (sort, unmark, delete, load, save or view/play bookmarked files)

Imaging Tool bar

See also **Viewer tool bar**

Hand tool scrolls image via "hand" cursor if larger than viewing window.
Select tool ("cross hairs") sets marquee for cropping or copy/paste operations.
Zoom tool magnifies (marquee or clicked area) and toggles to "zoom-out" tool after magnification
Undo last imaging function
Auto-reference improves color balance in one step (click with **shift** key for imaging dialog)
Boost color saturation in one step (click with **shift** key for imaging dialog)
Improve midtones in one step (click with **shift** key for imaging dialog)
Improve exposure with flash fill in one step (click with **shift** key for imaging dialog)
Improve contrast in one step (click with **shift** key for imaging dialog)
Clean and minimize blemishes in one step (click with **shift** key for imaging dialog)
Improve sharpness in one step (click with **shift** key for imaging dialog)
Remove red eye from selected area
Make digital pictures more natural in one step (click with **shift** key for imaging dialog)
Rotate clockwise (click with **shift** key for imaging dialog)
Rotate counter-clockwise (click with **shift** key for imaging dialog)
Flip image vertically in one step
Flip image horizontally in one step
Histogram shows statistical image information

Explorer Tool bar

Back | Forward cycles through folders opened during your session
Up One Level changes current folder to parent folder (directory)
Open current folder or views **multiple files**
Copy or **Move** (with shift key pressed) selected folders or files
Recycle or **Delete** (with shift key pressed) selected folders or files
Slides (creates an instant slideshow or populates Slide Album)
Extra JPEG info (shows EXIF and JPEG comments)
Views (changes view style)
Folder Tree view (show or hide)
Bookmarks (sort, delete or goto bookmarked folders)
Recent (shortcuts to visited folders)

Slide Album Tool bar

Open an AVL slideshow or AVC catalog (album)
Save writes an AVL slideshow file or AVC catalog (album) to disk
Run tests slideshow from any slide position
Explore activates built-in Explorer
Get slides from (add all available slides from a drive or nested folder)
Add appends new slides from dialog (click with **shift** key to insert new slides)
View sends selected files to Viewer for display or playback
Cut removes selected slides (source is unaffected)
Reposition selected slides (change slide sequencing)
Recycle or **Delete** (with shift key pressed) selected source file(s)
Copy or **Move** (with shift key pressed) selected source files
Album mode enables source management functions and pop-up menu
Views (changes view style)

AIP (Ai Picture List)
These are plain text files where each line contains a complete pathname.
It can be edited with any text editor, e.g., WordPad.

AVL (Audio/Video List)
AVL files are simple files that script multimedia slideshows. Up to a MILLION slides (actually more) are supported; however, depending on the speed of your computer, we recommend a maximum of 32000 slides to ensure smooth slideshows. Unlike the AVC format, AVL files can stand-alone and are not dependent on the linked data (database) files in your Windows Temp folder; as such, saving to AVL format is recommended (regardless of number of slides) when archiving your Slide Album.

AVC (Audio/Video Catalog)
AVC files are stub files which link image database files located in application data folder. As linked database files effectively restore your Slide Album to a previous state instantly, this is the preferred format for dynamically managing large numbers of slides. When archiving your Slide Album, use the AVL format as it is a stand-alone format which is not dependent on the linked data files in application data folder.

BMP/DIB (Device Independent Bitmap)
DIBs are Windows bitmaps in their original color format. The file format is used natively for Windows Wallpaper; they may be uncompressed or use run-length encoding. BMP = **B**it**M**a**P**

Windows Wallpaper

How to change Wallpaper
View desired image and select **Tools | Wallpaper | Set**.

How to clear Wallpaper
Select **Tools | Wallpaper | Clear**.

Status bar
The Status bar displays image information and processing status; you can hide it for more "real estate" via menu option. From left to right, panels contain ...

a. Readiness or progress bar.
b. Current magnification or "Fit" (for **Fit To Window** mode).
c. Image height, width, color depth; scaled JPEG image.
d. Total bookmarks.

In **Fit To Window** mode only a scaled portion of a JPEG image may be loaded (faster).
[1:2] indicates only 50% magnification was required to display it in current window size;
[1:4] indicates only 25% magnification was required, and so forth. If you resize the window, select **File | Reload** (or **F5**) to change resolution.

Zooming
Zooming in or out magnifies an image from 25% to 800%. You can use the **Zoom to** menu command for a dialog with presets, or press ("**+**") or ("**-**") keys on numeric keypad to zoom. The **hand tool** is automatically enabled for scrolling the image (if required). **Fit To Window** mode disables zoom function. To magnify a marquee, select **View | Region zoom** from menu to magnify it (up to 800%) automatically.

The **zoom tool** can also be used to define a marquee and automatically magnify an area of interest; You can also click anywhere on the image to show the actual pixels of a large image (e.g., 10 Megapixels) that was fitted to screen and click again to return to a fit-to-window view.

TWAIN (Tool Without An Interesting Name)
This is an interface for acquiring images from external devices (e.g., cameras, scanners, video grabbers). TWAIN drivers have their own interface and controls; acquired images appear in the Viewer.

Select **File | TWAIN | Select** to acquire an image via any installed TWAIN device.
Select **File | TWAIN | Acquire** to begin acquisition with default TWAIN driver.

Note: Modern digital cameras have a USB interface that lists photos just like a hard drive.

multiple file selection
Click desired filenames with **Ctrl key** pressed to highlight selection. Repeat the process on other filenames. To unselect, click on a previously selected filename (highlighted) with **Ctrl key** pressed. For a range of files, click on a starting filename then click another file with **Shift key** pressed; all files between first selected file and current file are selected. To select all files in current folder click on a filename then press **Ctrl-A**.

file association
File association sets which application opens a specific file type when an **open command** (context menu) of Windows' Explorer is invoked. If you associate a specific file types with AiPICT, its Viewer is automatically launched with selected image. By default, only the **open command** is associated. You can also use the **Send to** context menu available on all Windows desktop applications.

Select **Tools | Associations | Set** from the Viewer's menu to associate default file types (e.g., JPG). If another application changes default associations, you can call this function again to reestablish file associations. A dialog is presented where you can choose specific file types to associate. Select **Tools | Associations | Change** from the Viewer's menu to associate selected file types with other applications.

list view
This is the main control that displays files and folders in a many styles (including thumbnails). When items are selected (or not) a different pop-up menu appears with right-click. Unlike Windows Explorer (or MyComputer), you don't need to scroll to an "empty" space to "drop" items, you can "drop" items on files -- dropping items on folders copies or moves them to that target folder.

tree view
This control displays a hierarchy of folders. If there are sub-folders, you can expand it (access sub-folders) by clicking the "**+**" button or collapse it (hide sub-folders) by clicking the "**-**" button. Click a tree view item to select and display its contents.

contact sheets
These are large (sequential) bitmaps packed with multiple thumbnails; they closely represent what photographers get when they want a positive image of their "negatives". Contact sheets avoid many little thumbnail files (which eat disk space) and simplifies uploading/publishing your web page. Each thumbnail in the contact sheet represents one picture and includes the filename at the bottom; the size of the contact sheet depends on **PageWidth** setting. Since you can view contact sheets independently (i.e. does not have to be in a Web page), they are always sized to screen dimensions. If PageWidth is 640 then a 640x480 contact sheet is made -- 1024 results in 1024x768 and so on. The number of thumbnails (per contact sheet) varies with thumbnail size and contact sheet size.

drag & drop
Drag & drop is a method to copy or move files between applications. After selecting files (or folders) drag them (keeping left or right mouse button down) to another application. Our built-in Explorer accepts files and folders, as well as transfers between its Folder tree and list view. The Viewer and Batch Unzipper accepts files from its Explorer and other applications. The Slide Album will accept dropped files from other applications; dragging is intended solely for moving slides to another position in its listview window.

mapped network drive
You can access shared files over a network, in native UNC (Universal Naming Convention) format (e.g., "\\servername\g\shared"). Right-click on Network Neighborhood and select **Map Network Drive**; once the new drive is assigned a drive letter and is visible in MyComputer, Windows Explorer and built-in Explorer.

Native Windows networking support is included. Select **View | Networks** to enable and enumerate available computers as "drives". By default, this option is always disabled due to numerous factors (e.g., authorization protocols) that can affect network enumeration. You have to explicitly enable it when required. Enable this option if you have numerous networked computers (e.g., over 20) in your "Network Neighborhood". SoHo users may prefer to use **mapped network drives** instead if they have only a few networked computers for faster access.

Only computers that appear in "Network Neighborhood" or "My Network Places" or "Computers Near Me" folder are included; use "Add Network Place" to add it to mentioned folders.

Tile
This function primarily optimizes the Viewer and built-in Explorer windows on your desktop. By default, the Viewer window occupies half of your desktop on left side; if AutoSize and AutoCenter options are disabled, it will remain there. **The Windows taskbar limits the size and position of all of windows.** If you invoke this function with **shift** key pressed, then Windows taskbar is disregarded to provide more real estate. This function works even if Viewer is in full screen -- creating a fixed, "naked" viewing window.

Both left-handed and right-handed settings, as well as overlapped Explorer and Viewer windows, are supported. You can optimize the Viewer and Explorer windows asymmetrically too. The Viewer window will automatically resize and "dock" to the left or right side of the Explorer window. For asymmetric tiling, adjust the Explorer window to desired width; with **Ctrl** key pressed, select from Viewer or Explorer menu

Tile | Viewer left - Explorer right
or
Tile | Viewer right - Explorer left

The Slide Album has a special tile function. When invoked, Explorer or Slide Album window appears on right side; if both are visible, each occupies a quadrant. Also, if invoked with **shift** key pressed, then Windows taskbar is disregarded to provide more real estate.

Font (List view, Tree view)
This function presents a standard dialog to change the font used by the built-in Explorer's list view and tree view controls. Use it to increase accessibility or simply to make text more readable when your eyes are tired.

You can change the font size and typeface (i.e., font name) and it will be saved and recalled with each session. Font color and style (e.g., italics, strikeout, bold) can also be changed, but only "bold" can be saved and recalled. Using different font colors is useful when opening multiple instances.

The Slide Album will automatically use the same font currently used by the built-in Explorer when it is first invoked; it can be independently changed during any session.

thumbnail caching
When thumbnails are saved on your local hard disk, revisited folders, show thumbnails "instantly" as they are not recreated -- this is caching. The same technique is used to manage Slide Album thumbnails. Cached files are persistent and saved in its application folder (e.g., c:\Program Files\Applied Insights\data). You can use **Cache | Clear** to delete all cached thumbnails.

Hue, Luminance and Saturation
The Hue-Luminance-Saturation (HLS) model is a commonly used metaphor for TV controls. Hue is "tint" control; it skews colors to yellow-green or red-violet; adjust this component to correct colors that seem to reddish or yellowish. Negative settings tint colors towards magenta, while positive settings tint colors towards yellow.

Luminance, also known as "lightness", represents the intensity of the color -- it ranges from black to white; Hues with high Luminance values have a "pastel" appearance. "Video gain" or "picture controls" approximate (albeit inaccurately) the effect of adjusting Luminance values.

Saturation is the amount of color that distinguishes it from gray shades; adjusting this value can make an image look more "film-like" as opposed to "video-like". This control is equivalent to TV's "color" control; lower values will remove color while higher values "add color".

Red, Green, Blue (RGB) Channels
The Red-Green-Blue guns are the basis of all CRT monitors. If each "gun" shines bright red, green and blue light on the same spot, colors "add-up" to white. *Pure* red and green equals yellow; *pure* green and blue equals cyan; *pure* blue and red equals magenta. The common denominator of red, green and blue equals white (gray shades); the further a color deviates from gray shades, the more contrast is perceived. When applied to flesh tones, more *red* or less *green*, results in pink tones. Conversely, more *green* or less *red* results in brown or olive tones. Blue is usually the weakest and makes flesh tones fairer or darker by affecting the white level. In many cases, adjusting blue values restores proper "white balance" of an image. As our eyes are most sensitive to green shades and individuals differ widely in their sensitivity to green shades, images provided by different sources are commonly adjusted or equalized (incorrectly) by adjusting green shades.

contrast stretching
This image processing technique improves contrast by evenly "stretching" intensities. High contrast is obtained by stretching all tonal values between shadows and highlights. Highlights (brighter intensities) are made brighter and shadows (darker intensities) are made darker -- intermediate shades are interpolated between the brightest and darkest shades. By stretching only certain tonal regions, specific exposure problems are improved or corrected. For instance, stretching highlights improves contrast and boost midtones. The same method can be applied to color saturation and other color space components.

color distance
Brightness adjustments are implemented by differentiating color values from pure black; the greater the difference, the greater the brightness. Contrast adjustments are implemented by differentiating color values from a reference gray shade; the greater the difference, the greater the contrast. The proportion of RGB values are kept constant so as not to change the hue. As these techniques were designed to modify color palettes, its primary advantage is uniformity and speed.

marquee
Use the select tool to define a region of interest (marquee). When copying an image selection, only portions within the marquee are copied. When pasting, only portions of your image within the marquee are replaced. You can also copy and paste to a pre-defined cell.

How to set an image selection (Marquee)

1. Click or select **Edit | Select tool** from menu; cursor changes to "cross hairs".
2. Position mouse at a starting point on your photo (usually somewhere on top left-hand side).
3. Drag the mouse (keeping left button pressed) until satisfied with boundaries of the rectangle. When you release the mouse button, a marquee is set.

grid
Grids are pre-defined marquees which represent equally divided cells on your image. Each cell is created by dividing your image into equivalent rows and columns. By default, the **Grid Select** dialog presents four cells (two rows and two columns), from which you can select (click) any quadrant for copying or pasting. You can pre-define up to 16 regions by specifying the number of columns and rows that divide your image. Grid marquees are extremely helpful when making simple collages.

viewport
The viewport is where your image is displayed excluding all visual controls -- e.g., scroll bars, tool bars, menus, status bar, and borders. It is technical known as the "client area".

custom aspect ratios
Most display devices have a 4:3 aspect ratio for TV compatibility. Legacy display monitors are preset with square pixels to ensure WYSIWYG ("what you see is what you get") printer output. If you create a blank 500x500 image, the width and height of the square would be identical when physically measured with a ruler on the screen; this is true for standard VGA (640x480), SVGA (800x600), XGA (1024x768) and UXGA (1600x1200) displays - as well as 1152x864 and 1280x960 display modes.

SXGA (1280x1024) displays have a 5:4 aspect ratio where images acquired or designed for 4:3 displays will look distorted. Most analog monitors let you adjust its width and height to display square pixels for each display mode; digital (LCD) monitors have locked aspect ratios. On 5:4 displays, you can temporarily resample images to view it correctly with "square" pixels by using a 0.938:1 aspect ratio to simulate a 1200x1024 "viewport" or 1.067:1 aspect ratio to simulate a 1365x1024 "viewport" (depending on your default monitor setup).

Some displays are optimized for DVD playback (with 16:9 or 15:9 aspect ratio) and do not have square pixels. Many widescreen 15:9 displays (1280x768) distort images that were originated with square pixels; when viewing these images you can use the "0800" preset for a 0.800:1 aspect ratio to compensate for the distortion by simulating a 1024x768 "viewport".

To set a custom aspect ratio, create and save a blank 500x500 image; view it and physically measure the width and height of the rectangle on the screen with a ruler. Experiment with custom aspect ratios until the rectangle is perfectly "square".

gamma correction

How to gamma-correct your monitor.

1. View **GAMMA.BMP** file (included).
2. Select **Enhance | Color Temperature** from Viewer menu.
3. From imaging dialog, select **RGB Gamma** method.
4. Check **Original image (actual view)** option.
5. Adjust RGB sliders until inner (colored) rectangles appear identical to outer rectangles.

Most video card drivers include gamma correction features. Adjust your display with value derived above; a value of 125 is 1.25 (i.e., 1/100). In theory, how an image appears on one gamma-corrected display will be identical on another gamma-corrected display (e.g., monitor).

image enhancement dialog

Image Enhancement dialogs preview adjustments. There are two image panes: the left pane contains original image; the right plane previews modifications. Original images are displayed in actual size if a region of interest was selected with Viewer's marquee tool. In actual viewing mode, use the scrollbars to view and preview modifications on regions of interest. By default, a fit-to-window view of original image is displayed in left pane and modifications are previewed in the same manner for an overall appreciation of potential changes. You can switch between a fitted and actual view by checking **Original image (actual view)** option.

Image Enhancement dialogs are solutions-oriented and group multiple methods to tackle an imaging task from different approaches. Select from any of the presented methods in the **Methods control box** to work with your imaging task; slider controls change accordingly.

Some methods work by selecting a target color pixel from the original image pane; this color is displayed in the **Selected color box**. Other methods work by masking a range of colors which are displayed as **magenta** in the modified image pane; to change the masking color, click the **Mask color box**. To switch between viewing the masked range of colors to actual preview of adjustments, uncheck **Modified image (show mask only)** option.

A **Histogram** button is made available if methods uses histogram statistics; click it to get another perspective of your photo's characteristics. When satisfied with adjustments, click **Apply** button. If **Lab Script** is active, equivalent lab commands are tracked and added to replicate desired steps, if required.

gamma controls
The brightness control on typical TV set uses a linear approach to increasing or decreasing brightness -- i.e., shadows, midtones and highlights are increased or decreased in equal steps. To see subtle details, one typically adjusts the brightness to such an extent that the highlights appear "burned". By using a curvilinear function, instead of a linear one, light is applied where our eyes readily perceive a tonal change -- in the middle of the range. Gamma curves are curvilinear functions that do just that; light levels fade-in and peak at the center, then gradually fade-out. See also How to gamma-correct your monitor.

mask controls
Pictures can be combined in many ways to achieve a particular outcome. By combining only shadows, midtones or highlights from one picture with another, isolated changes can be fine-tuned to a specific tonal range. Shadows can be lightened without affecting midtones, or highlights can be darkened without affecting midtones, and so forth. By using a "tonal range" mask, very subtle results can be achieved. Typically, a duplicate (hidden) image is combined with a manipulated one. In addition to macro functions that automatically manage a duplicated image, advanced functions are included that provide the flexibility to set any image as the duplicate bitmap.

mapping controls

Remapping functions use statistical information to calculate mean and standard deviation for a set of intensity values in your picture. These intensity values are gathered using an internal "chart" of your image known as a histogram. Depending on color model used, gray shades, saturation or individual red, green or blue components may be "charted". **Mapping controls** redistribute intensity values and are typically represented here by **brightness** and **contrast**. Redistributing (remapping) a new mean value affects "brightness" while a new standard deviation affects "contrast" of your image.

combine mask
Pictures can be combined in many ways to achieve a particular outcome. By combining only shadows, midtones or highlights from one picture with another, one can isolate changes made to a specific tonal range. Shadows can be lightened without affecting midtones, or highlights can be darkened without affecting midtones, and so forth. By using a mask, these combinations can be finely tuned to achieve very subtle results. **Mask controls** filter what gets combined and what doesn't. Typically, a duplicate (hidden) image is combined with a manipulated one. In addition to macro functions that automatically manage a duplicated image, advanced functions are included that provide the flexibility to set any image as the duplicate bitmap.

The combine mask uses the current image's gray scale to determine what extent individual pixels are blended with the duplicate image. When masking highlights, the brighter the pixel the less it is blended with duplicate; you could brighten a duplicate image to minimize backlighting then mask highlights to avoid overexposure, as only shadows and midtones are blended with duplicate. Conversely, when masking shadows, the darker the pixel the less it is blended with duplicate; you could darken a duplicate image to minimize overexposure, then mask shadows to avoid "backlighting" as only highlights and midtones are blended with duplicate. If midtones are degraded, you can boost gamma correction (or smooth the image with your choice of filter) and mask midtones to retain original shadows and highlights.

You can adjust the **band** to limit or increase the range of pixels being masked. Values greater than 100 widen the band; values less than 100 applies narrow bands. The **mask** variable independently blends the grayscale of current image with duplicate's grayscale to provide greater control over the masking process; 99 uses only current image's gray scale while 0 uses duplicate's grayscale -- in-between values are proportional grayscale values of both bitmaps.

color mask
The color mask uses a **band** of colors to isolate desired pixels. To visually select a color, use the "crosshair" cursor on preview image; selected color appears in **color base** box with its HLS value. To preview "protected areas", click **Show mask** button. Adjust HLS bands to specify a range of color values to be "masked". For "glamour photography", you can isolate and smooth all skin tones while leaving all other details sharp.

randomize
This function adds random pixels. It is useful for testing image compression or interesting backgrounds. It is particularly useful when used as a reference image for image matching. You can adjust RGB values to bias the randomization towards a particular color.

CRC
This as a kind of checksum that uniquely identifies any file. No two files with the same filesize can have the same CRC; as such it can identify duplicates or corrupted files.

Family name sorts
Alphabetically arranges files and folders by Family name. The last word separated by a space is used as sort criteria to accommodate European naming conventions.

Locate folder
Function does a sub-string search for sibling folders (e.g., "Pic" in "MyPicCollection"). It helps manage numerous sub-folders (e.g., Model folder with populated sub-folders using their names). Calling this function with **Shift** key pressed limits search to leftmost characters (e.g., "My" in "MyPicCollection").

Refresh functions (Explorer window)

View | Refresh - updates the listing of viewed files and sub-folders with latest additions and deletions.

View | Folder size - calculates bytes used by each folder listed by recursively scanning all sub-folders. The **size** field in listview shows total bytes used by current files. Instead of invoking the Properties function for each folder, use this function to view (and sort) listed folders to assess your disk usage or prepare material for mastering of DVD/CD backups. Actual disk usage will vary with type of FAT -- e.g., NTFS will report lower disk usage than FAT32. As the contents of any given folder (or its sub-folders) may change, the calculated fields are not persistent. If you refresh the listing or a monitoring events triggers a refresh, calculated fields will be reset to "zero". System folders are protected by Windows; as such they are excluded from calculations; use Properties function to get actual folder size.

View | Detect drives - manually updates listing of removable mass storage drives (e.g., USB) at root level.

Mouse wheel
Mouse wheel support has been tested with standard Windows XP drivers and MS Intellimouse drivers. Most mouse drivers typically override the wheel rotation function (and wheel button) with special operations (e.g., universal scrolling). We have programmed workarounds for these overrides, but you may need to set your mouse driver to allow the middle button (i.e., wheel button) to accept application-specific functions; if necessary, set the wheel button to "default" or "unassigned".

thread priority
Having reached a 'glass ceiling' for single core speeds, new CPUs now run at lower speeds but with multiple cores (e.g., AMD Phenom, Intel Quad-Core). Each core is essentially a separate CPU capable of accessing all resources (e.g., memory) on your computer. By running different tasks at the same time, your computer runs, theoretically, four times faster if it has four cores. In reality, actual speeds vary with how efficient your system coordinates tasks running at the same time. For example, four JPEG files can be encoded in memory at the same time, but only one can be safely written to a hard drive.

Each concurrent task runs as a 'thread' and is assigned a normal priority by the system (default, 25% to 50% of your CPU's time). You can increase the thread priority to increase the amount of time assigned to the task. Depending on your system and current tasks running, setting the priority too high will show an initial burst in processing speed but will eventually slow as memory and other resources are used. For this reason, normal and lower' priority setting tend to perform better when processing a lot of files (e.g., thumbnailing entire volumes).

Levels
It is useful think of your picture as consisting of three distinct regions: shadows, midtones and highlights. The tonal range of your picture extends between shadows and highlights. A high contrast picture has very dark shadows and very bright highlights. A low contrast picture has mostly midtones. High contrast picture with muted midtones appear to lack details; conversely, a low contrast picture appears muddy or faded. Ideally, you would want a high contrast picture with lots of midtones.

Tool tips
These are small pop-up windows that are similar to those that appear when you hover the mouse over tool bar buttons. Both files and folders will display complete long filenames and file date; files include additional information (i.e., image dimensions and file size). If you invoke the **folder size** function (Ctrl-F5) the calculated size of folder contents is included and displayed.

Arrange
This function determines how files and folders are sorted in listview for any given session. You can view file objects in descending or ascending order by **Name**, **Size** and **Date**. In addition, you can display listview objects by **Type** and **Family]** By default, listings are ordered by filename in ascending order, which is very fast as it is native to the Windows shell.

semi-persistent
An image buffer that is **semi-persistent** is temporary in nature. It is typically used in advanced lab command scripts with complex procedures. As it maintains a full copy of the image, it increases memory usage. After a lab script is executed, all semi-persistent image buffers are cleared. If a paste operation requires a lot of memory, semi-persistent image buffers are also cleared.

AVL Remote Control
The AVL Remote Control resembles a typical remote control for presentations. As such, you can present and discuss slides for unlimited periods as well as jump to any slide in your presentation. It is activated when you stop a slideshow by clicking the slideshow window (or by pressing **Esc** key) during playback. It is available only when a slideshow is launched from the Slide Album. It is also quite useful for testing and fine-tuning your slideshow or presentation.

Previous, Next, First and **Last** buttons navigate to and display the corresponding slide in "pause mode". You can use the **scroll bar** to select any slide or type the slide number directly in the **edit box**; clicking the **Go to** button displays the specified slide. The **Play** button continues playback of slideshow from specified position. The **Stop** button terminates the slideshow; keyboard users can press the **Esc** key for the same function. Keep in mind that individual slide properties are executed per slide; as such, if a slide has no background color property, the background is not cleared ... and so forth.

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