ArcImage v1.0

Welcome to the *ArcImage* from Better Maps Software!
This application is designed to provide a tool for storing and organizing graphical images.

Select one of the topics below:
Running (Quick Start)

Overview
Main Controls
Notes
Sound
Video
Ole
Drag-n-Drop
Compression

Version History
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(NOTE: You may print this entire help file by selecting the "Print All" button)

Overview

ArcImage is simply an image database - with a little "extra". It allows you to organize various types of graphical images into catalogs (databases) which can then be easily accessed for update and retrieval.

Unlike other "catalog" programs that only maintain a reference to the images on disk, ***ArcImage*** actually stores the image itself in a (optionally) compressed format which can minimize the disk space required by the original image anywhere from 2 to 100 times. The compression process itself is implemented as a background operation which enables you to continue using the application without having to wait for its completion.

You may also annotate each individual image with <u>Notes</u> and/or <u>Sound</u> which can be displayed and/or played back upon image retrieval.

Access to the images contained in a database is provided via an "Iconic Listbox" prominently occupying the upper half of each database dialog. Upon insertion, a thumbnail representation of the image is created and used as a visual aid in identifying its location in the database. This thumbnail is displayed along with the image keyword, compression statistics, and mini-icons (representing annotations) in a Listbox fashion that can be quickly accessed and manipulated.

As a Multiple Document Interface (MDI) application, ***ArcImage*** allows you to maintain several open databases on the desktop which can be minimized and/or arranged for your viewing pleasure.

ArcImage can also be used as a means of converting graphics from one format to another by <u>Importing</u> and then <u>Exporting</u> the image. The most convenient feature of ***ArcImage*** , however, is its ability to <u>Drag-n-Drop</u> images both in and out of the database.

There are many other features and characteristics of ***ArcImage*** which make it an extremely powerful utility to complement your existing Windows environment. This help file serves both as a quick reference and on-line manual which can be printed in its entirety by selecting the **"Print All"** button above. The best way to learn more is to <u>Get Started</u> .

Running - Quick Start

The main menu of **ArcImage** consists of a window with a pull down menu. From the pull down menu, you typically either create a new or open an existing image database. The default filename for this database has an extension of .BIF.

Once the database is opened, the main dialog appears which contains all the primary functions available to manage the images for that database file.

NOTE: ArcImage complies with the basic Multiple Document Interface (MDI) standard of Windows. Therefore, it is possible to have more than one database (or .BIF) open at a time.

The following steps outline a typical session:
1. Select NEW from the pull down menu of the main window. A file dialog box will appear in which you type in the name of the database. (The default extension is .BIF)

2. Once the database is created, select Import . Another file dialog box will appear from which you can select the image(s) that you wish to import.

3. The next dialog box prompts you to select the type of Compression (in any) that will be applied to the image before insertion.

4. If more than one image was selected, a progress window will appear indicating the number of files that have be queued for insertion

5. After all files have been queued, each file will be processed for insertion by first reading the image data, creating the thumbnail, and then compressing the image (if necessary). During this time, the "Iconic-Listbox" will display a stopwatch icon in place of each image's thumbnail to indicate that it is currently queued for insertion but has not yet be added to the database.

6. Once the image has been successfully processed, the stopwatch icon is replaced with the image's thumbnail representation. The degree and type of compression used is also displayed.

7. To view an image already saved in the database, select it from the list and either double-click the mouse or push the Show button. The image will be decompressed (if necessary) and re displayed in a Full Resolution Window. Information regarding the image is also displayed in the Image Info Area at the bottom of the screen.

8. To leave ArcImage, select the EXIT button.

Main Controls

Each catalog maintained by **ArcImage** is represented in a dialog box consisting of the "Iconic Listbox" and various controls designed to access and manipulate the database

For more information on the purpose and functionality of these controls, select from the following:

Import
Export
Show
Status
Search
Save
Delete
Print
Record
Play

Notes

Import

The Import function is the primary means by which you add images to your database (The others being Drag-n-Drop and the Clipboard). Selecting it causes a "common file dialog box" to be displayed from which you select an image (or images) to import. At the bottom of the file box you may filter the search for specific formats by selecting the file type from the list of supported image formats.

The Import Utility dialog box provides several ways in which to select more than one image to import. In addition to the standard Windows methods for selecting multiple items from a list, you may press the Select ALL button to highlight all files currently displayed in the file Listbox. The Clear ALL function will deselect all selected entries.

When you select more than one file for Importing, ArcImage prompts you to confirm that you will be "Batch" Importing the number of files selected. If you select OK, another dialog box will appear requesting that you select the Compression method to use when archiving these images.

During the Batch Importing process, a status window will display the progress of the operation. As files are inserted into the compression queue, the Thumbnail Listbox will display the name of the inserted image object along with an Icon representing a Stopwatch to indicate that the image is pending in the compression queue. Once the image has been compressed and written to the database, the Stopwatch icon will change to a mini-Thumbnail of the image and also display the relative percentage of compression achieved. At that point, the image is selectable for viewing or extraction.

To view the relative position of any one image in the compression queue or to determine the overall compression progress and performance, select the Status button which will display the Compression Status window.

see also DragDrop

Export

The Export function provides a means to save individual images stored in ***ArcImage*** to an external DOS file.

Selecting this function displays a file dialog box in which you select the type of image to export and the filename of the image.

In general, you can export any file type to any of the supported raster formats (ie BMP, PCX, GIF, etc.). This applies to vector graphics images as well. You can not, however, convert a raster file format to a vector format (ie WMF, WPG, DRW etc.).

Show

The Show function is used to extract and display the currently selected image in the "Iconic Listbox".

Upon selecting this button, the image will be decompressed (if necessary) and displayed in its own separate <u>Full Resolution Window</u>. The image statistics will also be displayed in the Image Info Area at the bottom of the screen

Once in this window, there are several image manipulation functions that can be applied to the image.

Compression Status

The Compression Status Dialog Box displays the current state of the compression queue maintained by *ArcImage*.

When you Import. an image into the database, you are prompted select a Compression method (or NONE). If you elect to compress the image, the image object is then added to a queue of images waiting to be compressed. Since the compression process occurs in the Background you may continue using ArcImage (or any other application) without delay.

The dialog box controls not only display information about the current state of the queue, but also provide the ability to manage it via the Abort, Delete and Delete ALLcontrols.

The Total Compression Bar displays the aggregate disk space savings attained via compression.

Search

The Search function lets you "filter" the display of thumbnails in the list box by specifying a keyword or text string to match.

Only those images meeting the desired search criteria will be displayed.

The drop-down list in the Search dialog box maintains a persistent record of previously selected keywords. To delete an entry in this list, select the item and then press the "Del" button

NOTE: To restore the display of all images after a filter has been applied, simply use a blank keyword (empty string)

Save

The Save function will simply save any changes you've made to the <u>Notes</u> of the currently selected image.

If you edit the notes and then attempt to select another image without first saving the changes, you will be prompted as to such.

Delete

The Delete function deletes the currently selected item from the database

Print

The Print function will enable you to print the current image in one of several layouts:

Full Page
Half Page
Centered

You may also "draw" a rubber band-type box in the Print Layout area to designate where you want the image to be placed on paper.

Checking the "Maintain Aspect Ratio" box will ensure that the image is printed in proportion to its original dimensions.

If you "check" the <u>Notes</u> box, you can draw a rectangle that specifies where on the paper you would like the notes (if any) to appear.

The "Print Thumbnail Catalog" will produce a hard copy representation of the "Iconic Listbox" by printing each of the thumbnails and their associated data (with notes) to the printer.

see also <u>Hints and Tips</u>

Record

The Record function provides a way to attach sound to an image.

In order to use this function you must have some type of device capable of creating .WAV files (ie Sound Blaster Card).

A dialog box will appear which allows you to control the recording and optionally playback or delete to current audio.

The sample database (SAMPLE.BIF) contains images with sound attached. The Image List Box denotes this attribute with a mini PLAY icon next to the image thumbnail

Play

The Play function will attempt to playback any sound data that you have recorded via the RECORD function and attached to the image.

You must have some type of sound driver present in order to hear the recorded sound. The installation disk contains a software driver provided by Microsoft that will emulate a true device such as the Sound Blaster Card.

The sample database (SAMPLE.BIF) contains images with sound attached. The "Iconic Listbox" denotes this attribute with a mini "play" icon next to the image thumbnail.

Notes

The Notes edit control lets enter up to 4k (4000 chars) of textual information to store with the image object.

The information in the Notes can later be used for locating an image via <u>Search</u> function. They can also be <u>Printed</u> along with image.

While the cursor is in the Notes box, you can select the next/previous image in the list box display by pressing the PageDown/PageUp key while holding down the CTRL key.

The sample database (SAMPLE.BIF) contains images with notes attached. The "Iconic Listbox" denotes this attribute with a mini "notes" icon next to the image thumbnail.

Full Resolution Window

When an image is selected in the "Iconic Listbox", it can be displayed in a Full Resolution window by either double-clicking on the image or selecting the Show button.

The Full Resolution Window contains its own pull down menu which contains various image manipulation functions.

ArcImage handles both raster (bitmaped) and vector-based types of graphics. Since the nature of these two formats is inherently defferent, the type of manipulation that can be applied depends on whether it is in fact a raster or vector based operation. For instance, you can "dither" a raster image but not a vector image. When you resize a vector image, each component of the image is dynamically adjusted. Resizing a raster image simply stretches/shrinks the actual image data to fit the desired size.

The follow topics elaborate on the various functions available in a Full Resolution window:

Orient
Attributes
Convert

Video and OLE images also behave uniquely based on the nature of these objects. Video images can essentially be configured for playback and then "run" in accordance with the Microsoft Video for Windows interface.

OLE "images" will be displayed in a Full Resolution window also, but can only be manipulated via one of the "Verbs" linked to that object in accordance with the OLE v1.0 specification.

All images displayed in a Full Resolution window can be Exported , Printed or copied to the clipboard. Any sound attached to the image can also be Played

Orient

The Orientation functions of the <u>Full Resolution Window</u> allow you to rotate or flip the image about the X or Y axis.

Attributes

The **Attributes** functions of the <u>Full Resolution Window</u> allows you to control and adjust the basic elements of the image.

The ***Contrast and Brightness***. option displays a dialog box containing two scroll bars which control the contrast and brightness of the image. Negative values make the image darker or more "contrasty". Positive values make the image brighter and less contrasty.

The ***Invert*** option performs a simple logical inversion of the pixels used to display the image. This typically results in a representation of the image resembling a photographic negative.

The ***Resize*** option displays a dialog box which allows you to adjust the X (or horizontal) and Y (or vertical) dimension of the image.

Convert

The **Convert** functions of the <u>Full Resolution Window</u> allow you to perform various manipulations on the image data. When applied, these functions actually change the image data in the window, and, thereby affect the type of operation that can be subsequently applied. For instance, once you've converted a 256-color image to *Halftone*, you can no longer perform a *JPEG preview* of that image. You can, however, restore the original image by selecting *Original* , at which time all of the available functions initially applicable to that image are again available.

NOTE: None of the image manipulations you apply to the image when it is displayed in a Full Resolution window affect the actual image that is stored in the database. In order to save an image that has been altered in some way, you can either <u>Export</u> it or *Insert* it as a separate entry.

The **Halftone** option reduces a color or gray scale image to 1 bit per pixel using a half-toning algorithm. This method is similar to that used by newspapers to print color images in black and white.
The **Bayer Mono** option reduces a color or gray scale image to 1 bit per pixel using an 8x8 fixed grid.
The **Diffusion** option reduces a color or gray scale image to 1 bit per pixel using an error diffusion algorithm. An error is calculated by threasholding each pixel to monochrome. The error value is then distributed among pixels.
The **Bayer 16 Color** option reduces a 24 or 8 bit image to a 4 bit (16 color) image using the standard Bayer dithering matrix.
The **Diffusion Color** option reduces a 24 or 8 bit image to a 4 bit (16 color) image using the standard error diffusion algorithm.
The **Gray scale** option simply converts the palette of a color image to continuous gray values producing a gray shading effect.
The **Popular Color** option reduces a 24-bit image to 8 bits per pixel by finding the 256 most prevalent colors and then constructing a new palette to represent the image using only these colors.
The **Median Cut Color** option reduces a 24-bit image to 8 bits per pixel by separating the image into 256 blocks and then averaging each block into a color to produce a 256 color palette
The **Sharpen** option displays a dialog box which allows you to specify the degree of sharpness to apply to the image using a Laplacian algorithm. Negative values produce a smoothing effect where positive values will increase the sharpness of the image.

The **JPEG Preview** option performs a JPEG compression of the image and then immediately decompresses the image and displays the results. This feature allows you to determine the affect of applying JPEG compression to an image without having to <u>Export</u> and then <u>Import</u> the image.

The **Original** option simply restores the image to its original state when the Full Resolution window was created.

Sound

Sound can be attached to any image in the database via the RECORD function. It can lter be played back via the PLAY function.

Obiviously, your system will need to be configured with some type of device (ie Sound Blaster Card) to properly record and playback sound.

Sound data tends to occupy an inordinate amount of both memory and disk space. For this reason, the length of a recording is limited to 60 seconds. When a recorded sound is stored with an image, it is always compressed.

see also Hints and Tips

Video

Video is support by **ArcImage** via the Microsoft Video for Windows (MVW) API. If you do not already have MVW installed on you system, the installation program will provide the option of installing the "run-time" version of it.

Please read the MVW terms in the file MVWTERMS.TXT before installing MVW.

OLE

ArcImage supports OLE v1.0. This means that it can access objects such as Bitmaps or WAV devices from applications that provide them like PaintBrush and Media Player.
Normally, in order to import an OLE object into ArcImage, it has to first be made available by the sever application.

When you select the OLE button from the <u>Import</u>, ArcImage will determine if there is anything available. If so, you may choose to either Paste or Paste Link the object.

To activate (or "play") the verb(s) associated with the object (call the server application) you must extract it into a <u>Full Resolution Window</u>.

JPEG compression is not permitted with OLE objects, even if they are bitmaps. When the object is saved in the database, its icon (or thumb nail) is the same as the familiar Object Packager.

You can also <u>Export</u> an OLE object to a disk file the same as you would with any other image. This is handy for later retrieval via the Import function. The OLE objects must have a .OLE file extension.

Drag-n-Drop

ArcImage supports Drag-n-Drop functionality for importing and exporting images.

To accomplish this, simply "Drag" a file (or files) from another application (such as File Manager) over to the ArcImage's main screen and then "Drop" the file(s).

A list box will appear containing the file(s) that were dropped. Pressing OK will initiate a Batch Import of all files listed. To abort the operation, press Cancel.

When the Batch Import operation begins, you will again be asked to confirm importing the number of files selected. After confirmation, the files are inserted into the compression queue. Before the first file is compressed, you will be prompted to select the compression method to be applied to all files. Once this is done, the files are compressed and inserted into the database.

You may use the Drag-n-Drop feature with only the minimized icon of ***ArcImage*** displayed as long as a *.BIF database is currently open.

You can also drag an image "out of" ***ArcImage*** and "drop" it into and existing application (ie Write. PaintBrush, etc.) that support Drag-n-Drop.

ArcImage provides an additional Drag-n-Drop feature not normally found in other applications that provide such functionality. If the target application would normally support "pasting" the type of object you are dragging in its raw form, ***ArcImage*** will prompt you with the option of doing so in lieu of simply embedding a packaged version of the object.
For example, normally, if you drop a bitmap into a Write document, you will have only embedded a packaged object representing that paintbrush picture. With ***ArcImage***, you can also literally paste that image directly into the document as if it has been copied from the Clipboard.

Compression

When images are inserted into the database, you have four (4) choices of how to treat the data:

1. **LZW** - This is a "lossless" algorithm (way of doing something) which compresses data by symbolically encoding the redundancy in it. Depending on the type of image, a different flavor of LZW may be implemented to take advantage of the specific characteristics. "Lossless" means that all original data is restored when the image is decompressed.
Two RadioButtons following the LZW option allow you to control the performance of the algorithm with respect to "Size" and "Speed". If you select "Size", maximum effort is given to compressing the image as much as possible. The "Speed" option attempts to compress the image as fast as possible while still achieving a reasonable reduction in image size.
Experimentation with these two options on various types of images revealed that the "Speed" mode does not necessarily always increase the size of the resulting compressed image. This is especially true with monochrome (or two-color) images.

2. **JPEG** - This is a "lossy" algorithm which is useful for archiving 8 and 24-bit images. "Lossy" means that some of the original data in the image is actually discarded in order to achieve high compression ratios. These types of algorithms take advantage of the fact that some of the data in a "real" image can not actually be seen anyway. This is particularly true with 24-bit images. The JPEG factor controls the degree of loss you are willing to accept in an image. The default is 3 which produces a reasonable compromise between image quality and compression performance.

3. **NONE** - ...you guessed it.

4. **Custom** - You can link in your own compression algorithm via a Dynamic Link Library (DLL) written in the language of your choice. Sample source code has been provided to illustrate the basis requirements. For more information contact Tech Support

see also:
Compression Status
Background Compression

Abort Compression

When you select the ABORT button in the Compression Status Dialog, you are prompted for confirmation. If you select YES, the current image is deleted from the queue and the compression process is suspended until you restart it by pressing the button again.

Queue Delete

When you select DELETE from the Compression Status Dialog, the selected image in the queue is removed.

Queue Delete All

When you select DELETE ALL from the Compression Status Dialog, all images in the queue are removed.

Background compression

All image data compression is accomplished as a "background" task in ***ArcImage***. This allows the user to continue working in the application without having to wait for compression to finish. With large files this can sometimes seem like an eternity.

It is worth noting, however, that running a task in the "background" on a PC really means that you are sharing the CPU with that task. Normally, one or more tasks can coexist in Windows very nicely. The trouble comes when both tasks have heavy requirements for processing time. Compression, by its very nature, is extremely CPU intensive - it wants ALL of your computer ALL the time! ***ArcImage*** attempts to balance this demand with the (typically) much more easy-going, fat, dumb and happy user interface. While every attempt has been made to keep the compression process as transparent as possible, you may notice a slight degradation in responsiveness while processing certain images. Unfortunately, the more responsive you make the interface, the longer it takes to empty that compression queue.

Technical Data

The following is a summary of notable capabilities and restrictions of **ArcImage:**

Formats Supported:
>"Windows Bitmaps (*.BMP;*.DIB)"
"PCX Files (*.PCX)"
"TIFF Files (*.TIF)"
"GIF Files (*.GIF)"
"Various FAX Files (*.FAX;*.DCX)"
"Targa Files (*.TGA)"
"JPEG Files (*.JPG)|"
"Windows MetaFiles (*.WMF)"
"WordPerfect Files (*.WPG)"
"CGM Files (*.CGM)"
"Designer Files (*.DRW)"
"DXF Files (*.DXF)"
"EPS Files (*.EPS;*.AI)"
"HP Plot Files (*.HGL;*.PLT)"
"MET Files (*.MET)"
"MAC Pictures (*.PIC;*.PCT)"
"SDW Files (*.SDW)"
"Video for Windows Files (*.AVI)"
"OLE Files (*.OLE)"
"Write Files (*.WRI)"
"MS Word, WP Files (*.DOC)"

Compression Methods: LZW, JPEG, Huffman
Max image size: (limited by available memory)
Max number of database records: 8,192 records but also limited by available memory
Max size of Notes field: 4k

System Requirements:
386+
4mb RAM
6mb free disk space
VGA card (SVGA highly recommended)
Mouse or other pointing device
MCI compatible Sound Card (optional)

Technical Support

Program and Technical Support provided by: **Better Maps Software**

920 Sycamore Ave #49
Vista, CA. 92083
Phone (619) 598-1323 - Voice/FAX

Hints and Tips

(1) You may import sound files created external to the **Image Commnader** via the *Import* button during Record.

(2) MultiPage FAX files (typically .DCX) are imported as separate images representing each page. This makes it convenient to quickly eliminate one or more of the pages (such as cover page) to reduce disk space requirments.

(3) In order to test for and handle "bad" image formats, we used text files, word processing files, and even executables files as input. As a result, all of these file type are now "supported" in the sense that they will not crash the program. In fact, any file that can not be decoded as a Windows graphic image is treated as a special DOS image. This image is represented in the "Iconic Listbox" with the familiar MSDOS logo. It is treated just as if it were a legitimate image execpt, of course, that you can not display it. You can, however, run it if it has a .EXE extension and is a valid executable file. To do so, simply double click on the icon.

(4) If you have a FAX software package that provides a Windows compatible printer driver, you can use the **ArcImage** Print utility as a means of sending custom one-page FAXes. To do so, add the text that you wish to send to an image in the database. Select Print and arrange the image and text as desired. From the "setup" button, you can select the FAX driver as the default printer. When you print the image, it will be converted to a FAX and processed by the FAX application for scheduling.

Known Bugs

1. Due the inherent limitations of the OLE v1.0 specification, you may experience irratic behavior when working with very large OLE objects such as sound files and large bitmaps. OLE v2.0 will be implemented in future versions and should correct these anomilies.

2. If, after Importing one or more images, the Stopwatch icons representing these images does not change to a thumbnail or the Compression Status show images in the queue but is "idle", exit Image Commander AND Windows and restart the process.

Please forward any questions or bug reports to Technical Support

Version History

The following is a synopsis of changes implemented in each revision of ArcImage.

v1.07 - 9/9/93
Initial Release

Trademarks & Credits

EDI Threads is product of Eschalon Development Inc.

Win/Sys Library is a trademark of TurboPower Software

Sound Blaster is a trademark of Creative Labs, Inc.

Borland Pascal, **Borland C++** and **Object Windows Library (OWL)** are trademarks or registered trademarks of Borland International.

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Halcyon Vector Graphics Library is a product of Halcyon Software, Inc

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ArcImage v1.0 Registration

To register your copy of ArcImage please print this file, fill it out, and send it with $28 per copy to:

BETTER MAPS SOFTWARE
 920 Sycamore Ave #49
Vista, Ca. 92083

*CA residents please include applicable sales tax.
Name:_____

Company:_____

Title:_____

Address:_____

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Phone:_____

FAX:_____

Disk format: ( ) 5 1/4   ( ) 3 1/2

Where did you hear about ArcImage?:

_____

Comments:

_____