2·0 *ImagePals*

**Introduction &
background information**

Contents

. Introduction

ImagePals is an integrated package containing file management, advanced image editing and screen capture programs that make your work with images and other files easier and more productive than ever before.

There are three main programs: Album for cataloging and managing, browsing, converting and retrieving your files; Image Editor for scanning, editing, enhancing and adding special effects to your images; and Screen Capture for capturing images of any component from your Windows screen.

About this guide

This guide provides an introduction to the ImagePals programs and some background information that will help you work more effectively with them. The information is presented as follows:

1. ***Installation***, explains how to install the ImagePals programs and calibrate your display.

2. ***About ImagePals***, introduces the ImagePals programs. This introduction will help you understand what you can achieve with each and, if you have used an earlier version of ImagePals, what's new in this version.

Note: *For detailed information about a particular program, refer to its user guide. CD Browser and Viewer are described in the Album user guide.*

3. ***Object linking and embedding***, takes a look at OLE and explains how you can use object linking and embedding to move files between programs.

4. ***File formats***, describes the different file formats that you can catalog with ImagePals, as well as the image and graphics formats that ImagePals can directly read.

5. ***Images***, provides an introduction to images, color models and printing. Understanding the information in this chapter will help you not only use ImagePals more efficiently but also provide you with a solid background in the techniques of imaging.

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1 *Installation*

This chapter gets your copy of ImagePals up and running. The next few pages show you how to install and run the ImagePals programs and how to calibrate your display to ensure the consistent display of images.

1·1

Getting started

Before you begin installing, check that you have the following:

Your ImagePals package

- *License agreement.*
- *Disk pack,* one of the first questions you will be asked during installation is the serial number from the disk pack: take a note of the number or have the disk pack on hand before you begin installing.
- *Registration card,* take the time to fill out this card during installation and become a registered user.
- *This introductory guide.*
- *Album user guide.*
- *Image Editor user guide.*
- *Screen Capture user guide.*

Your computer

- *System,* an IBM PC 386/486/586, PS/2, or compatible computer.
- *Operating software,* Microsoft Windows (version 3.1 or higher).
- *Memory,* 4MB or more of system memory (RAM).
- *Disk drives,* a floppy disk drive and a hard drive (with approximately 10MB of free space).
- *Display,* any Windows-compatible display adapter, including VGA, Super VGA, XGA, 8514/A, and 15-, 16-, or 24-bit.
- *Pointing device,* any mouse, trackball or pointing device supported by Windows.
- *Input device (optional),* any desktop or hand-held scanner, video board or frame grabber with compatible drivers. TWAIN-compliant input devices are supported.
- *Printer (optional),* any black & white or color printer, imagesetter or film recorder supported by Windows.

1.1.1 Installation

The ImagePals installation program runs from within Windows and is fully self-explanatory. You must use this program to install ImagePals as the program files require decompression during the installation process.

To install ImagePals:

1. Turn on your computer and run Microsoft Windows.

2. Read the license agreement and, if you agree to abide by it, open the disk pack.

3. Remove the ImagePals program disks and make a backup copy of each disk. Use the backup copies to follow the rest of this procedure.

4. Insert the first program disk into drive A (or drive B).

5. Open Program Manager (or File Manager) and choose the Run command in the File menu. The Run dialog box appears.

6. In the Command Line entry box, type **a:\install** (or **b:\install**) and press enter. The installation program begins.

7. Follow the installation program instructions. While the program is installing files, the installation window displays information about ImagePals and the progress of the installation.

Note: *To move between entry boxes in the installation program, use your mouse or press TAB (*not *ENTER).*

8. When the installation program is finished with the first disk, you will be asked for disk 2. Remove disk 1, insert disk 2 and click on OK. Repeat this step for each disk requested.

9. When the installation is complete you are asked if you would like to read the ReadMe file. This file contains important information that is not included in the printed documentation.

10. Remove all the disks and keep them in a safe place. ImagePals is now installed and ready for use. The ImagePals icons will appear in a program group in Windows Program Manager. (Exactly where depends on the choices you made during installation.)

1.1.2 Running the programs

To run Album, Image Editor, Screen Capture, CD Browser or
Viewer, simply double-click on the appropriate icon in the
Windows Program Manager. If you followed the suggestions
made by the installation program, the program icons will appear
in the ImagePals program group.

*The ImagePals
program group*
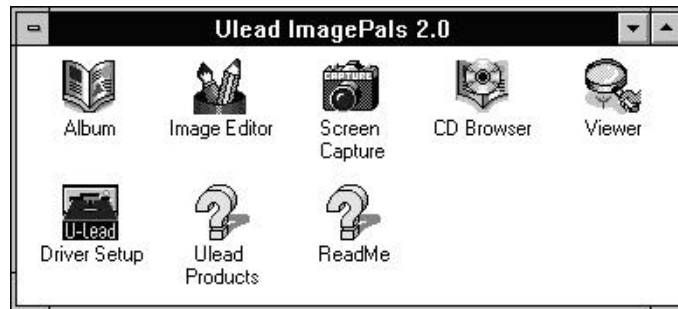
1·2 Calibrating your display

To display images and graphics consistently, it is important that you optimize your monitor by calibrating your display. Every time you change your monitor, display adapter or the environment in which you work, you should recalibrate. You can conveniently calibrate your display from either Album, Image Editor, Screen Capture, or Viewer.

To calibrate your display:

1. Choose "Display" from the Preferences submenu in Album's Album menu or in the other programs' File menu. The Display dialog box opens.

2. Make sure the Monitor Gamma option is unchecked. If it is checked, click on it to uncheck it.

3. Click OK. The dialog box closes.

4. Display the IPGAMMA.TIF file. In Image Editor, Screen Capture, or Viewer, open it with the Open command from the File menu. Using Album, insert it into an album and double-click on its thumbnail to display it, (in Viewer).

Note: *The IPGAMMA.TIF file should be in the same directory as your ImagePals programs.*

The IPGAMMA.TIF file
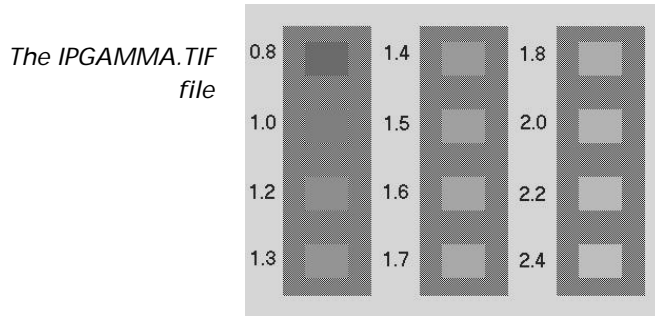
5. Examine the IPGAMMA.TIF image and identify the gray square that most closely matches the midtone gray of the vertical background strips. Make a note of the number of this square. If, for example, the square at the bottom of the middle row most closely matches the gray strip, take a note of the number 1.7.

Note: *This number can be any value from 0.01 to 7.99. If none of the squares exactly match, you should estimate the best match. In general, your value should fall within the range 0.8 – 2.4. If none of the squares match, then you may need to manually adjust the brightness and contrast controls on your monitor first.*

6. Choose "Display" from Preferences submenu in the program's File menu. The display dialog box opens.

7. Click on the Monitor Gamma option to check it and enter the number recorded in step 5 into the Monitor Gamma entry box.

8. Click OK. The dialog box closes. Now, when you view the IPGAMMA.TIF file, the gray square numbered 1.0 should most closely match the gray strip.

Note: *When using Screen Capture to capture screen components to either the Screen Capture or Image Editor workspace, you may find some degradation between display color and captured color. If this occurs, simply uncheck the Monitor Gamma option.*

2 *About ImagePals*

To get the most from each of the ImagePals programs, it is important to understand their individual roles. This chapter gives you this information with a brief introduction to the whole package as well as each program.

Since the first version, the ImagePals programs have existed as a tightly integrated package offering comprehensive image editing and file management control. Each program shares a similar look, feel, and many common features allowing you to move from one to the other with a minimum of fuss and bother. ImagePals 2 is no exception and the two new additions, Viewer and CD Browser, have strengthened the package's solidarity. *Common features include:*

- support for Black & White, Grayscale, Indexed 16- and 256-Color, and RGB True Color image data types.
- ✪ compatibility with a variety of image and graphics file formats including BMP, CGM, CUR, DCS, DXF, EPS, GIF, ICO, IFF, IMG, JPG, MAC, MSP, PCD, PCT, PCX, PIC, PSD, PXR, RAS, RLE, SCT, TGA, TIF, WMF and WPG.
- ✪ conversion between file formats.
- support for JPEG, LZW and RLE compression schemes.
- ability to view images at different magnifications.
- monitor gamma calibration.
- printing to output devices supported by Windows, including PCL and PostScript printers, film-recorders, and high-resolution imagesetters.
- ✪ batch manager to apply commands to multiple files.
- commands to undo and redo operations.
- ✪ enhanced "drag-and-drop" facilities.
- ✪ multiple preferences to customize operating conventions.
- ✪ quick access to the other ImagePals programs via the Pals menu.
- ✪ expanded on-line help that is always available via a help button or the F1 key combination.

Legend   ✪ *enhanced features*
☆ *shows features new to ImagePals 2*

2·1 Album

Album helps you organize all the files in your system. It tracks and manages these files using their name, location on disk and, most visibly, a thumbnail. You collect thumbnails of files into albums which allow you to directly manipulate the files, and even invoke other programs to edit and view them.

Combining high-end database and cataloging technology, Album is quick *and* very powerful. You can manage a few hundred files or over a million with equal ease. With thumbnail and filename display modes, you can choose between visual management or the more "traditional" text-based approach – providing you with the best of both worlds.

The features of Album include:

✪ ability to visually catalog all your image, graphic, animation, audio, video and application-linked files.

✪ automatic and manual file collection.

✪ choice of thumbnail size, data type, and compression.

✪ commands to move, copy, rename, delete, and change DOS attributes of any file, and to convert the data types and file formats of image and graphics files.

☆ automatic file and album integrity checks.

✪ facilities to easily assign and maintain thumbnail descriptions, subjects and keywords. (Ability to export and import catalog information as text files for spell-checking and quick input)

☆ marking of individual thumbnails to aid interactive browsing.

☆ search ribbon one-step search operations.

☆ display of multiple files for preview or comparison.

✪ slide show for images, graphics, animation, and video files – including soundtrack controls.

✪ dragging-and-dropping of thumbnails between albums, to and from programs as well as from Windows File Manager.

  ✪ enhanced OLE support with special features to speed up placing, previewing and printing of images in client programs.

  ✪ toolbox with program grouping provides direct and convenient access to your most commonly used programs.

  • shelf for storing albums.

  ☆ direct import of images from TWAIN-compatible devices.

Legend ✪ *enhanced features*

  ☆ *shows features new to ImagePals 2*

2.1.1 Viewer

Viewer is a quick and easy way to open and display image and graphics files without having to first open them in their associated programs. You can invoke viewer in several ways:

- from the Windows Program Manager by double-clicking on its icon.

- direct from Album and CD Browser by double-clicking on a thumbnail.

- from an OLE client program by double-clicking on an embedded or linked image or graphics object.

Note: *Viewer is described in the Album user guide.*

2.1.2 CD Browser

CD Browser saves you both time and disk space. Instead of spending half a day collecting images from a Kodak Photo CD and creating an album on your hard drive, CD Browser gives you an instant album-like catalog. After locating the right images, simply select them and click on a button to display them in viewer, catalog them in Album, edit them in Image Editor, or copy them to your local drive.

Note: *CD Browser is described in the Album user guide.*

2·2 Image Editor

Image Editor, as its name suggests, is the program to choose for creating, enhancing, and painting images.

The features of Image Editor include:

☆ unique object pool for the storage and management of images and masks.

☆ global viewer to help you find the right view of an image quickly.

✪ selection tools and commands to select single or multiple parts of an image, expand selection areas, select the border of an area and control the merging of selection areas.

✪ painting and retouching of images with a wide range of tools.

☆ an anti-aliasing option for smoother text.

☆ clone tool for cloning parts of an image within or between images.

✪ controls to adjust gamma, hue, saturation, brightness, contrast, and mapping curves – all of which help to enhance a whole image or any selected part of an image.

☆ transformations such as distort and slant as well as over twenty special effects including warping, puzzle, watercolor, and fisheye; all with the ability to preview effects before application.

✪ friendly, automatic and manual stitching of images.

✪ enhanced support for OLE.

✪ saving images to a new or existing album.

✪ image input from Photo CD, Screen Capture, scanners, frame-grabbers, or other input devices which have a compatible driver.

☆ input and output device calibration with post-processing commands and pre-print mapping options (and new halftoning control for printing).

Legend   ✪ *enhanced features*
         ☆ *shows features new to ImagePals 2*

2·3

Screen Capture

Screen Capture is dedicated to capturing all types of images from your screen. Complete with standard editing and conversion functions, Screen Capture requires no assistance: after capturing images they are ready to use and should require no further editing.

The features of Screen Capture include:

- capturing of interface elements from Windows programs (and DOS windows in Windows), image data from the clipboard, or resources from execution files.
- ✪ capturing to the workspace, a destination file (and optionally Album), the clipboard, a printer, Image Editor or any combination of these destinations.
- automatic addition of a keyline, drop shadow or border.
- conversion to other data types and resolutions, both during and after capture.
- user-definable hot key.
- control over the timing of a capture: immediate, delayed or consecutive.
- capturing with or without a pointer. Use the Windows pointer or choose another from a resource file.
- quick access to all major options via the ribbon and, when minimized, the Screen Capture icon's control menu.
- ability to choose your Windows color scheme from within Screen Capture.
- ☆ saving and loading of capture settings.

Legend   ✪ *enhanced features*
         ☆ *shows features new to ImagePals 2*

3 *Object linking and embedding*

ImagePals not only helps you manage files on disk effectively but, with Album acting as the hub, it can also help you handle the movement of files between programs. This chapter describes how to control this movement through Object Linking and Embedding.

3·1   Object Linking & Embedding (OLE).
What is it?

OLE was designed to act as a method of maintaining and transporting files between programs. The file is called an *object* while the programs are referred to as the server and client. The *server* is the program that created or can edit the object; the *client* is the program into whose document the object is placed. Album (in conjunction with Viewer) and Image Editor can act as server programs, while your word processing, DTP and presentation packages (e.g. Microsoft Write, Word for Windows, Aldus PageMaker 5, Quark Xpress and PowerPoint) can act as clients.

Once placed into a client program, the object "remembers" the server program it came from. To edit the object, you simply have to double-click on it in the client program's document: the server program opens, displaying the object. This link to the original file and its server program is the advantage OLE has over copying and pasting.

So, what about linking and embedding? Well, in taking the object from the server to the client you can choose if just a representative version of the object is taken, *linked* – or if the object itself (and a representative version of it) are taken, *embedded.* The remainder of this section explains more about linking, embedding and the options Album and Image Editor provide as server programs.

3.1.1 Linking

Linking an object stores a representation of an object and a link to the original file on disk and server program in the client program's document. This means that you *must* retain the original file on disk, and in the same location, to retain the ability to edit it. The major advantages of linking are:

- it does not increase the size of the client document too much (especially if you use Album's low-resolution place-holder option).

- you can place one piece of information, such as a logo, into many different documents and by editing the original file update all of them in one action.

The disadvantages are:

- if you are not just using Album to manage your files (you may also be using DOS and Windows File Manager) it is very easy to move, delete or change a linked file unknowingly.

- the document is not readily portable – to move the document and maintain a link, you need to move the files with the document and retain the same directory structure or relink them after moving.

To link an object

Linking objects always starts from the server, as follows:

1. *From Album:* locate the album containing the thumbnail of the file you want and select it.

   From Image Editor: open the image file you want (if you wish to paste only part of the image, select that part).

Note: *Before you proceed, ensure that the correct options are chosen in the OLE & Clipboard preferences dialog box. For Image Editor, select **Include OLE-Related Formats** or, in Album, select **OLE Linking Format**.*

2. Choose "Copy" (Image Editor) or "Copy: File" (Album) from the Edit menu to copy the selected file to the clipboard.

3. Open or switch to the client program containing the document into which you want to place the object.

4. Choose the client program's Paste Special command. The Paste Special dialog box appears.

Note: *Some client programs have a Paste Link command, you can use this as a more direct alternative to the Paste Special command.*

5. Select "Picture" or "Device Independent Bitmap" in the Data Type list box (choice depends on whether the source is Album or Image Editor). The Paste Link button becomes enabled.

6. Click on Paste Link. The dialog box closes and a representation of the object appears in the client program's active document.

Note: *You can also place linked objects into client programs by dragging and dropping them from Album. Album also provides an option to choose the representation format to help you make the process as efficient as possible. These options are described fully in the Album user guide and on-line help.*

3.1.2 Embedding

Embedding an object into a client program's document places a copy of the original file along with a representative version of it and a reference to its server program. This means that if you delete the original file from disk, no harm comes to the embedded file. The major advantages of this are:

- it makes the document containing the object portable and independent: as long as the server program is available, you can edit the object regardless of whether you have deleted the original file from disk.

- there is little danger of you deleting or making changes to the object accidentally. You can also place the same piece of information into many different documents and edit them all individually without affecting any of the others.

The major disadvantage is:

- the size of your document in the client program increases significantly. If you do not wish to retain editorial control over a placed object, it is better to paste a single copy of the object into the document, i.e. don't link or embed it at all.

- when updating a shared object, you have to relink each one individually.

Note: *When embedding objects from Album, it is advisable to keep the original file and the album that contains its thumbnail. If you delete the file or the album, you will still be able to access album from the embedded object and replace the embedded object, but you will not be able to edit it.*

To embed an object

You can start from the client program or the server program to embed an object. Starting from the server program, follow the procedure for linking outlined in the previous section, but, in step 6, press the Paste button instead of the Paste Link button. To start from the client program, use the following procedure:

To embed an object from the client program:

1. Open or create a document in the client program and select the client's Insert Object command (or similar). The Insert Object dialog box appears.

2. In the Object Type list box, select Ulead Album Clip or Ulead Image Editor Image.

3. Click OK. The dialog box closes and the selected server program (Album or Image Editor) appears.

4. *In Album:* locate the album containing the thumbnail of the file you want to embed and select it.
    In Image Editor: open the image you want to embed.

5. From Album's Album menu or Image Editor's File menu, choose "Update *client*" (*client* is the name of the client program you begin this procedure in).

6. Switch back to the client program. The object you selected appears in the document in the client program.

Note: *The options in the OLE & Clipboard preferences dialog box do not affect this method of embedding. However, if you use the client program's Paste or Paste Special commands be sure you have selected the options appropriate to embedding.*

3.1.3 What happens when you double-click on, or want to edit an object?

When you go to edit an object from Image Editor, the behavior is the same as that for other normal server programs; Image Editor opens displaying the object. Album is, however, a little different as Album supports more than just image files and provides no editing functions. You can relink as follows:

For image and graphics files

- to relink or update an embedded file: Select the Edit: Ulead Album Clip command, Album opens displaying the album the original object came from. You can then update from the original, or select an alternative thumbnail and update.

- to view a file in Viewer: Double-click on the object and the file is displayed in Viewer. This is most useful for viewing the original file of a low-resolution place holder.

- to replace an embedded low resolution place holder with the original file: Select the Edit: Ulead Album Clip command, Album opens displaying the album the original object came from. Open the OLE & Clipboard dialog box, accessed by choosing the OLE & Clipboard command in the Album: Preferences submenu, and select the ***Source Object Representation Format***. Choosing the Update command in the Album menu then replaces the low-resolution place holder with the original image.

- to relink a low-resolution place holder, which has been linked, to its original image or graphics file: Open Album and, in the OLE & Clipboard dialog box, select the ***Source Object Representation Format***. Close Album and go back to the client. In the client, select the object and update it (most clients provide an update links, update fields or similar command for this purpose).

For other types of files

Album can embed and link all types of images, graphics, animation, sound, and video files. After embedding or linking you can use the link provided by Album as follows:

- to relink or update an embedded file: Select the Edit: Ulead Album Clip command, Album opens displaying the album the original object came from. You can then update from the original, or select an alternative thumbnail and update.
- to preview a sound, animation, or video file: Double-click on the object and the file is displayed in Windows Media Player.

4 *File formats*

Since ImagePals can manage files of any type, you will almost certainly find yourself seeing file extensions and formats you're not familiar with. This chapter explains these formats and provides a guide to help you better understand the wide range of formats now available for PC users.

4·1

Working with file formats

Within ImagePals, files are categorized into eight media types: Image, Graphics, Waveform, MIDI, Video, Animation, Application-Linked, and Others. From these groups, the ImagePals programs can only directly edit, read and write files falling into the Image and Graphics groups. For files from the other groups, ImagePals can directly catalog and manage them and, when you wish to edit them, transfer them to compatible programs for you.

The table below shows the extensions of files that you will normally find in each group. This chapter describes these files in the order they are presented in the table.

File type		File formats available (extensions)
Application-linked		Any file registered in registration database, e.g. WRI, TXT,…
Others		DBF, DOC, PPT, RTF, CDR
Waveform		VOC, WAV
MIDI		MID, RMI
Video		AVI
Animation		FLC, FLI, FLX
Graphics		CGM, CLP, DRW, DXF, HGL, PCT, PIC, WMF, WPG
Images		BMP, CLP, CUR, DCS, EPS, GIF, ICO, IFF, IMG, JPG, MAC, MSP, PCD, PCT, PCX, PSD, PXR, RAS, RLE, SCT, TGA, TIF, WMF

4.1.1 Application-linked files

Application-Linked files are files that ImagePals does not directly support. This includes any files whose extension is linked to a Windows program in the Windows "registration database". (This database is maintained by Windows and records the link between files and their programs.) Application-linked files can be opened in their linked program directly from Album or Windows File Manager by double-clicking on the file's thumbnail or filename.

Links into the registration database come from four places:

- the programs themselves. When installed, programs record their proprietary formats and any formats they "expect" to open. Windows Write, for example, records Write (.WRI) files as one type of file that will open in it.
- the Associate command in the File menu of Album or Windows File Manager. This command opens a dialog box in which you can see the program a format is linked to by typing the extension in the Files with extension entry box. You can also change the association of files (see your File Manager's Help topic: *Associate Files with Applications*). This command is the method Microsoft recommends for editing the database.
- the [Extensions] section in your WIN.INI file. You can manually edit this section and add new entries. The Associate command is a more interactive method of editing this data.
- the registration database (the REG.DAT file in your Windows directory). Microsoft provides the utility, REGEDIT.EXE, which allows you to view and edit the database.

4.1.2   Other files

This is a special category for files that ImagePals can recognize and extract some information from but cannot read completely. The DOC files from Microsoft Word for Windows are a good example of this: ImagePals can read some of the header information, like the author's name, and enter this into the thumbnail information fields. For CDR files from CorelDRAW. 3.0/4.0 and PPT files from PowerPoint 3.0, you can get the header information from the preview information found within these programs.

4.1.3   Waveform files

ImagePals supports two types of Waveform files: VOC and WAV. WAV is by far the most common and can be played by Windows Media Player directly from Album. Waveform files can record sounds very accurately (much like images can record photographs) but the amount of space they occupy can be very large.

Note: *VOC files cannot be played by Media Player without special updating from hardware sound card vendors.*

4.1.4   MIDI files

MIDI stands for Musical Instrument Digital Interface and is a standard for communication between musical synthesizers and computers. Album can play MIDI files through Windows Media Player. (ImagePals also supports the RMI file format, developed by Microsoft.)

4.1.5   Video files

Currently there is one video file format in Windows that is unrivaled for popularity: AVI. This format was developed by Microsoft for use in its Video for Windows software and can record both Audio and Video data in an interleaved format. ImagePals allows you to play AVI videos using Windows Media Player.

4.1.6   Animation files

ImagePals supports Autodesk Animator FLIC files and uses Media Player to display the files.

4.1.7   Graphics files

Computer Graphics Metafile (CGM)

CGM is an official standard for graphics interchange developed by the American National Standards Institute. It uses three different standard encodings that include character, binary word and readable text.

CGM is device independent and is ideal for 2-D CAD program and drawing programs such as CorelDraw. ImagePals can read files in the CGM format.

Windows Clipboard (CLP)

Microsoft Clipboard format supports both vector and raster formats. For ImagePals this is primarily an image format that can read both formats and write to this format (in raster form.)

Micrografx Designer/Draw (DRW)

Graphics format used by the Micrografx Designer/Draw programs by Micrografx Corp. ImagePals can read this format.

AutoCAD Drawing Interchange (DXF)

Developed by Autodesk Inc. for PC-based CAD programs, DXF is the standard for CAD drawing data exchange and supports 2-D vector formats, including wireframes and filled planes. ImagePals can read in the DXF format.

Applications that support DXF graphics include CorelDRAW, PageMaker, Auto CAD, Cadkey, and FastCAD.

Hewlett Packard Graphics Language (HGL)

Developed by Hewlett Packard Co., for its plotters and laser printers, HGL is used in all CAD programs, as well as in word processing and charting programs. ImagePals is able to read in this format.

Quick Draw Picture (PCT)

Developed by Apple Computer Inc. for Mac programs which supports both image and graphics formats; for PC word processing, desktop publishing, and graphics programs; and for UNIX graphics translation programs; this format is ideal for both bitmap and vector data exchange. ImagePals can read both PICT I and PICT II formats.

This format PCT uses a coded binary (two-part numbering combination) PackBit (two byte coded compression) system to store bitmaps and provides excellent compression for monochrome images. PCT supports 8-bit, or 256-Color images drawing upon a 48-bit RGB palette.

Lotus Picture (PIC)

PIC was developed by Lotus Development Corp. to save vector charts and graphs for its Lotus 1-2-3 program. Programs that support PIC format include Javelin, MS Word, WordPerfect, and many other word processing and graphics programs. ImagePals is able to read files in the PIC format.

Windows Metafile (WMF)

WMF is a device-independent format for the exchange of raster and vector graphics data. WMF supports Black & White, Indexed 16- and 256-Color and RGB True Color images.

In ImagePals, saving files in WMF format saves data according to the type of display you have. For example, if you save a True Color image as WMF on an Indexed 256-Color display, when you open the file, you will see it as Indexed 256-Color. ImagePals can read both vector and raster formats and write to this format (in raster form.)

Word Perfect Graphics (WPG)

Created by WordPerfect Corp., for importing images into its word processing program WordPerfect, WPG records vector graphics. ImagePals can read files in the WPG format.

4.1.8   Image files

Windows Bitmap (BMP)

This is a file format that allows Windows to display an image consistently on different devices (with similar capabilities). It supports Black & White, Indexed 16- and 256-Color, HiColor (565 and 555) and True Color images. You may want to use this format to save indexed-color images for later use in programs like Windows Paintbrush or in Windows itself (as, for example, your "Wallpaper"). ImagePals can both read and write to this format.

Note: *ImagePals will convert 32-bit True-Color images to 24-bit True Color when reading.*

Windows Clipboard (CLP)

The Windows clipboard format may include different types of data. This data can be a device-independent bitmap (DIB), device-dependent bitmap (DDB) or metafile.

Clipboard bitmaps support Black & White, Indexed 16- and 256-Color and RGB True Color images. ImagePals can both read and write files in the CLP format.

Windows Cursor (CUR)

A Windows file format which stores bitmaps as resource files. ImagePals can read CUR files, but cannot write to this format.

Digital Color Separation (DCS)

Developed by Quark Inc., DCS format is an output enhancement format to EPS (see over) for saving image processing files. ImagePals supports DCS CMYK (4-2-4) True Color images and images in Grayscale.

Encapsulated PostScript (EPS)

EPS is a device-independent file format used in Adobe PostScript language that retains information that can be outputted directly to a printer, or imported into another program. A low resolution TIFF preview enables you to view the image when imported into other programs. ImagePals allows you to read and write to this format (in raster form).

Note: *ImagePals cannot recognize EPS files that contain information other than in an image format.*

Graphics Interchange Format (GIF)

Developed by CompuServe to allow device-independent transfer of images, GIF supports images up to 64 MB in size with up to 256 colors (8-bit), Black & White, Indexed 16- and 256-Colors.

GIF formats support LZW compression and is ideal for converting to and from this platform. ImagePals supports its 89A standard and can read and write to GIF format.

Note: *GIF files do not record image resolution.*

Windows Icon (ICO)

Windows Icon resource files may contain more than one image for a particular resolution. ICO formats support 16 × 16, 32 × 32 or 64 × 64 with 2-, 8- or 16-Color images. ImagePals can both read and write files in the ICO format.

Interchange For Files (IFF)

Developed by Electronics Arts for use in Deluxe Paint programs especially in the Amiga platform, IFF/ILBM support 4-bit color map and 24-bit direct color. ImagePals can read and write to IFF file format.

GEM Image (IMG)

Originally developed for their programs in the GEM environment by Digital Research Corporation, IMG file format allows you to compress Monochrome, Grayscale or Indexed-Color images. ImagePals can both read and write files in the IMG format.

JPEG file interchange format (JPG)

Developed by the Joint Photographic Experts Group, JPG is a new industry standard compressed file format that offers compression ratios up to 100:1 (original file: compressed file). As a standard it offers device-independence, i.e. you should be able to open any JPG file in all programs that support this format. JPG supports Grayscale, True Color and CMYK (4-2-4) True Color images. ImagePals can read and write to this format.

JPEG differs from LZW compression in that it is a "lossey" compression scheme: it discards data during compression. To minimize the visual effect of this loss, JPEG identifies and discards the information that is least important to the human eye. Use this format when disk space is at a premium, or you have very large images.

MacPaint (MAC)

Developed for it's MacPaint programs by Apple Computer Inc., this bitmap file format is supported by most Mac-based programs including PageMaker.

This file format provides support for 1-bit Black & White images (deliver Grayscale only through dithering). Images are 720×576 pixels. ImagePals is able to read and write to this format.

Windows Paint (MSP)

This bitmap format supports 1-bit Black & White images (deliver Grayscale only through dithering). ImagePals can read and write files in the MSP format.

Kodak Photo CD (PCD)

Eastman Kodak created PCD for its Photo CD products which allows you to view photos from Photo CDs. To enable you to view these photos in different display modes, PCD files contain 5 resolutions and allow you to choose from 3 different data types; Grayscale, Indexed 256-Color and True Color photos. ImagePals can read files in the PCD format but cannot save.

Quick Draw Picture (PCT)

Developed by Apple Computer Inc. for Mac programs; for PC word processing, desktop publishing, and graphics programs; and for UNIX graphics translation programs, this format is ideal for both bitmap and vector data exchange.

PCT format uses a coded binary (two-part numbering combination) PackBit (two byte coded compression) system to store bitmaps and provides excellent compression for monochrome images. PCT supports 8-bit, or 256-Color images drawing upon a 48-bit RGB palette. ImagePals supports PICT I and PICT II standard and can read, but not write to this format.

PC Paintbrush (PCX)

Developed by ZSoft Corporation for PC Paintbrush, this is the default format used by some scanning packages and paint programs (including PC Paintbrush). PCX supports Black & White, Indexed 256-Color, Grayscale, HiColor, True color and CMYK True Color images. ImagePals has the ability to read and write to this format.

Note: *Some versions of the PCX format do not record the resolution of an image. The version used by ImagePals does. If you import an image with no resolution defined, it will set it at your current display resolution. You can redefine the resolution with the Resolution command in the Edit menu.*

Adobe PhotoShop (PSD)

Created by Adobe Systems, Inc. for its PhotoShop package, PSD supports Black & White, Indexed 256-Color, Grayscale, True Color, CMYK True Color images. ImagePals can both read and write to PSD format.

Pixar (PXR)

PXR is the picture storage standard created by Pixar for Pixar Pixel Paint. This file format encodes and compresses Grayscale and True Color pictures. ImagePals can read and write to this format.

Sun Raster (RAS)

Developed by Sun Microsystems for its FrameMaker program, this type of format uses run-length encoding (RLE) compression.

ImagePals supports Black & White, Grayscale, True Color, Indexed 16-Color, 256-Color and True Color map RAS files. ImagePals can also read and write to this format.

Run-Length Encoded (RLE)

A file format especially for simple, long and repeated values that stores data in PackBit form. ImagePals supports Indexed 16-Color and 256-Color RLE files. Many paint programs, such as MacPaint, use this type of file format for storing data. ImagePals can both read and write files in this format.

Scitex CT (SCT)

Developed by Scitex as a format for image processing programs, SCT supports Grayscale and CMYK True Color (4-2-4) images. ImagePals can read and write to SCT format.

TARGA (TGA)

Developed by TrueVision for its full-color video boards (in particular the TARGA board), this is the format used by many specialist systems. ImagePals supports Grayscale, Indexed 256-Color, HiColor and True Color (Alpha Channel) TGA images, and can read and write to this format.

Note: *Some TGA files do not record the resolution of images.*

Tagged Image file format (TIF)

Developed by Aldus and Microsoft to promote the use of desktop scanners and DTP (desktop publishing), non-compressed TIF is hardware and software independent, but there are many types of compression available that are not.

ImagePals can both read and write files in the TIF format. In addition to Black & White and Grayscale images, ImagePals also supports Indexed 16- and 256-Color, True Color and CMYK True Color (4-2-4) TIF images with LZW, PackBits and CCITT G3 1-D compression options..

Choose this format for exchange image data between graphic media. Programs that support TIF images include: ColorStudio, CorelDRAW, PageMaker, PC Paintbrush IV Plus, PhotoShop, PhotoStyler, Picture Publisher Plus, PowerPoint, PrePrint and Ventura Publisher, to name just a few.

Windows Metafile (WMF)

See description for Windows metafile in the previous graphics section, (p.33).

4.1.9   Working with FIO modules

All the ImagePals programs can read and write FIO (File Input Output) modules. For ImagePals, FIO formats include those from the Images grouping. Depending on your working needs, you may use particular FIO formats more often than others. ImagePals provides a fast and easy way to select these FIO options. Add or remove certain FIO formats by using the File Formats command in the File: Preferences submenu.

Cataloging MIO (Media Input Output) modules is simple in ImagePals Album. You must manually copy, add or delete them from the directory by using File Manager.

5 *Images*

If you have followed this guide right from the beginning, you should have a fairly good idea of what you can achieve with ImagePals. This chapter differs slightly as it does not describe any particular functionality of ImagePals. Its purpose is to give you enough information about images and color so that you can fully utilize the image manipulation features of ImagePals.

5·1

What is an image?

An image can be a picture, a painting, or even an idea, but in the world of computers, it is a collection of dots called "pixels." These pixels are arranged in rows to form the image.

Each pixel is white or colored. Exactly which color depends upon the "data type" of the image. For the simplest data type, the pixels can be either black or white. For the most powerful data type, each pixel can be any one of 16.7 million colors.

As long as the pixels are small enough, you do not see them as individual dots: you see groups of pixels, which together form areas of color or gray. For images placed in a word processor, DTP program or output to a printer, the size of the image is determined by its "resolution". If an image has a resolution of 100 ppi (pixels per inch) and it is 100 pixels in width by 200 pixels in height, it will be one inch wide by two inches high.

Note: *When working with images in Image Editor or transferring images into a video, the resolution information is irrelevant: the size of the image is determined by its dimensions in pixels and the resolution of your graphics mode and monitor size.*

An image's pixels, resolution and data type all play a part in determining how the image will look when displayed or printed.

5.1.1   Image data types

The data type of an image determines the colors the image may contain and may also determine how it can be manipulated. In ImagePals, an image of any data type can be displayed on any type of computer display, but it does not appear the same on all displays. For example, if you display a color image on a monochrome monitor you will not see colors.

In many descriptions of image data types, you will see mention of "bits". The number of bits controls the number of colors available. You can work out the number of colors available by raising two to the power of the number of bits. For example, an 8-bit image type gives you 256 different colors (2 to the power of 8 is 256). This section explains the data types supported by ImagePals and the table below shows file formats available with the various data types.

Data type	File formats supported by ImagePals
Black & White	BMP,EPS,GIF,ICO,IFF,IMG,MAC,MSP,PCX,PSD,RAS,TIF,CLP,WMF
Grayscale	EPS,JPG,PCX,PSD,PXR,RAS,SCT,TGA,TIF
Indexed 16-Color	BMP,GIF,ICO,IMG,PCX,RAS,RLE,TIF,CLP,WMF
Indexed 256-Color	BMP,GIF,IFF,PCX,PSD,RAS,RLE,TGA,TIF,CLP,WMF
RGB HiColor*	BMP,TGA
RGB True Color	BMP,EPS,IFF,JPG,PCX,PSD,PXR,RAS,TGA,TIF,CLP,WMF

* *Not supported by Image Editor*

Black & White

Black & White is a one-bit data type. In a Black & White image, each pixel can only be one of two colors: white or black. You get gray shades by arranging black and white pixels in such a way that they appear to be gray. For example, in a square of four pixels by four pixels (sixteen in all), if there are eight black and eight white pixels arranged properly, the square will look gray (a 50% tint of black).

Grayscale

Each pixel in an 8-bit Grayscale image can be black, white, or any one of 254 different shades of gray. Grayscale is a 256-color (8-bit) data type.

All the Image Editor tools and commands can be applied to Grayscale images except those which are color specific. Choose this data type when you want to prepare images for publications being printed in a single color. If you want to introduce color into a Grayscale image, convert it to RGB True Color or Indexed 256-Color.

Indexed 16- and 256-Color

Indexed-Color images are images that have a "color table" incorporated into their description. This color table contains all the colors that can appear in the image. For Indexed 16-Color images, the table has 16 colors (4-bit); for Indexed 256-Color images the table contains 256 colors (8-bit).

You can simulate additional colors by using different colored pixels arranged closely together (dithering). Using this technique, the eye is tricked into seeing more colors than are actually found in the color table.

Most ImagePals functions work on indexed-color images, but to get full benefit from the more advanced editing features you need to convert Indexed-Color images to RGB True Color. You may wish to convert images to indexed-color for use in certain programs (such as multimedia presentations) and for display on 256-color and 16-color monitors.

RGB HiColor

This data type was introduced in conjunction with 15- and 16-bit display cards (capable of displaying 32,768 or 65,536 colors). For displays, these cards provide a lower-cost alternative to True Color cards for high quality color representation.

You may want to use this data type if you are capturing from a HiColor display or, if thousands of colors satisfy your needs, save images in this data type to save space on your hard drive. (An RGB HiColor image occupies 33% less memory space than an equivalent RGB True Color image.)

Note: *To save images in this data type, you must save them from Screen Capture and use the TGA (TARGA) format. The other formats do not support a 16-bit data structure.*

RGB True Color

The initials RGB stand for Red, Green, and Blue. The data type bears this name because all colors are created with different amounts of red, green, and blue. In fact there are 256 shades of each available color. When you mix all of these together you will find there are 16.7 million possible colors (3×8-bit = 24-bit), hence the term True Color. You can apply all the Image Editor tools and commands to RGB True Color images.

RGB 8-Color

The RGB 8-Color data type is a three-bit data type where each pixel can be one of eight colors. ImagePals supports scanners that scan RGB 8-Color images and will open RGB 8-Color images. RGB 8-Color images are automatically converted to Indexed 16-Color with the same colors retained (plus space for eight more). You cannot, however, convert to, or create new RGB 8-Color images.

5·2 Understanding color models

The "colors" available in Grayscale images are predefined: 254 shades of gray between black and white (256 "colors" altogether).

For color images the situation is very different. Our eyes can distinguish many thousands more colors than we can accurately describe. Color models help us imagine and describe colors for different situations. The ImagePals programs make use of the red, green, blue (RGB) model and the hue, saturation and brightness (HSB) model.

5.2.1 RGB color model

This model does not make it easy to imagine lots of colors, but is used by many computer monitors and image data types to specify color. From the whole spectrum of color there are three "primary" colors, red, green, and blue, from which all other colors can be created.

In this model the primary colors are plotted in a three-dimensional chart that looks like a cube. Red, green and blue are found on the x, y and z axes of the chart. The colors increase from nothing (black) at the origin to pure color. The line from the origin to the diagonally opposite corner of the square changes from black through varying shades of gray to white and represents equal amounts of red, green and blue.

5.2.2 HSB color model

We can visualize the colors available on each face of the RGB cube, but it is hard to imagine all the color combinations available inside. It is easier to imagine ranges of color (hue), such as reds, yellows, blues, violets; varying from a dull gray shade to a bright pure color (saturation); and whose brightness can vary from very light (white) to very dark (black). This is how color is presented in the HSB color model.

The HSB color model takes the form of an upside-down cone. Looking at the top of the cone you can see the colors arranged in a circle. The position of each color is defined relative to red. Green is at 120°, and Blue is at 240°. Opposite each primary color is the color's complementary color: opposite red is cyan (180°), opposite green is magenta (300°), and opposite blue is yellow (60°). If you follow a color band from the center out, you will see the color goes from white to an intense color. This is how the model visualizes color saturation. Brightness is visualized vertically: at the tip of the cone, the bottom, the point is black. Brightness gradually increases between this point and the top.

5·3 Printing

The ImagePals programs allow you to output files to any Windows-compatible output device. Image and graphics files are printed directly while other files printed from Album print via their linked program. To print files in Album, choose "Print" in the Album menu; in both Image Editor and Screen Capture, choose the Print command in the File menu. The files are sent to the printer currently selected in the Print Setup dialog box.

When talking about different types of printers, we refer to them as low-, medium- and high-resolution printers. Low resolution specifies a printer with output resolutions from 30 dpi (dots per inch) to 200 dpi and usually include such printers as ink jets and dot-matrix printers. Medium resolution printers are printers with an output resolution between 240 dpi and 600 dpi, this includes most laser printers. High resolution printers are printers with output resolutions exceeding 1000 dpi and are used to generate high-quality artwork used in commercial reproduction.

5.3.1 Halftoning

Halftoning is the process of creating a pattern of black and white dots to simulate shades of gray. This enables you to print Grayscale (or color) images on single color printers and maintain the feeling of continuos tone.

The Image Editor program allows you to control the halftoning process from the Halftone dialog box, accessed by clicking on the Halftone button in the Print dialog box. (Uncheck the ***Perform Halftone by Printer*** option to enable the Halftone button.)

If you uncheck the ***High Contrast*** option in the Halftone dialog box, you can adjust the options for shape, frequency and angle. If you do not uncheck the High Contrast option, your printed image will look as if no halftoning occurred; white will appear to be very white and black to be very black.

Note: *The Halftone settings do not affect the printing of Black & White images if the images, which are being printed pixel on pixel.*

To determine the best halftone screen settings, you need to understand how variations in shape, frequency and angle settings affect the final output when printing images.

Shape

Shape determines the shape of the black dot used to construct the halftone. The most commonly used shape is Round, the default setting.

Other options such as ***Diffused*** convert the image using a predefined diffusion process. This converts the image to black or white by transferring the difference between the pixel and the midtone value (127) to the pixel on the right and beneath it. This process continues from the first row and moves to the second row and so on. This process results in an image having less concentrated areas of black, thus creating a grainy texture appearance.

The ***Dispersed*** option divides the image into small areas which contain different pixel patterns. Each pixel pattern simulate a shade of gray. The final image when outputted to your printer gives the impression of a large transition area between the shades of gray.

Frequency

The distance between the centers of the halftone dots is referred to as frequency. This value is independent of the dot size; a high frequency number produces small dots, a low frequency, big dots. As the dot size increases, a darker tone is produced, until it begins to merge with its neighbors, eventually becoming solid black.

Note: *The higher the frequency, the smoother the apparent change in tone. However, your output device and other factors in the commercial production process will impose an upper value limit on the frequency settings.*

The default, 53 lpi (lines per inch) is calculated to give you a near-optimum result on a 300 dpi printer. For lower resolution printers, use a frequency between 30 lpi and 50 lpi; for other medium resolution printers, use the default or a frequency between 50 lpi and 80 lpi; and for high resolution printers choose a frequency between 90 lpi and 150 lpi. If you set the frequency too high, the printer will not be able to reproduce the image properly thereby losing image and causing the output of the image to be darker than expected.

Output for commercial production

If your work requires outputting to a high-resolution imagesetter to produce black-and-white artwork for commercial reproduction, it is best to first consult your commercial printer manual to determine a range of acceptable screen frequencies.

If you output onto bromide (light-sensitive paper), reduce the frequency by between 20 and 40 lpi because some information may get lost or distorted because your commercial printer has to produce film from your bromide. Reducing the frequency increases the size of the halftone dots, thus reducing distortion.

To print quality results whenever possible, you should output to film. It is important that the film is the right way round. One side of the film is coated with photographic emulsion which is the side that your image is produced.

After receiving the film, the commercial printer places it in direct contact with a light-sensitive printing plate and exposes the plate. If the emulsion is on the wrong side, the thickness of the film will diffuse the halftone dots enough to cause visible distortion to your image. So, first ask your commercial printer if they want the image "right reading, emulsion down", or "wrong reading, emulsion down"; then your service bureau should be able to change the way the film is exposed to suit the commercial printer's requirements.

Angle

The ***Angle*** option determines the angle of the halftone screen. The default angles are industry standard, but they can be adjusted for different images.

For Black & White output, if you select 90°, the dots occur in vertical columns evenly spaced across the image. If your image contains near-vertical or vertical lines, a 90° screen may produce a disturbing effect. The default (45°) is most commonly used because it rarely conflicts with elements within images.

• *Glossary*

Aspect ratio

The ratio of width to height in an image or graphic. Keeping the aspect ratio means any change to one value is immediately reflected in the other.

Averaging

A filtering process which takes the gray/color value of each pixel and averages it with the values of surrounding pixels. The value of each pixel is then replaced with the averaged value.

Bit

The smallest element of a computer's memory. Among other things, bits are used to record the color values of pixels in an image. The more bits used for each pixel the greater the number of available colors. For example:

1-bit: each pixel is either black or white.

8-bits: each pixel can be any one of 256 colors or gray shades.

16-bits: each pixel can be any one of 65,536 colors.

24-bits: each pixel can be any one of 16.7 million colors.

Bitmap

An image made up of a collection of dots or "pixels" arranged in rows.

Black & White image

An image that only contains black and white pixels.

Brightness

The brightness of an image is a description of how much light appears to be emitted from it. An absence of light, (black), has zero brightness; pure white light has maximum brightness.

Channel

Refers to one of the components of a color model. Different color models use different components to represent image colors. The RGB color model uses red, green and blue color component channels. The HSB color model uses hue, saturation and brightness color component channels. (Grayscale images can be thought of as single-channel images.)

Client programs

A program which accepts embedded or linked object files.

Clipboard

A temporary storage area shared by all Windows programs used to hold data during cut, copy and paste operations. Whenever you place new data onto the clipboard, it immediately replaces the existing data.

Cloning

Replicating one part of an image within or between different images.

CMYK

A color model in which each color consists of varying degrees of the colors cyan, magenta, yellow and black.

Color model

A color model is a way to mathematically describe and define colors and the way they relate to each other. Different color models exist, each of which has a specific purpose; the two most common color models are the RGB and HSB. (See HSB, RGB.)

Complementary color

Complementary colors are opposite in value to primary colors. For example, cyan, magenta and yellow are complementary colors of red, green and blue.

Compression (file)

A method for making files smaller in size on disk. There are two types of compression: lossless and lossey. Files compressed with a lossless scheme can be restored to their original state. Lossey schemes discard data and so images, when decompressed, may show quality degradation. The ImagePals 2 programs support schemes of both types depending on the format of the file.

Contrast

The contrast of an image describes the difference between light and dark. In an image with high contrast the transition from dark to light is very clear; in an image with low contrast, the difference between light and dark is not so obvious.

Conversion (file)

The process of changing from one file format into another.

Data type

The way an image is internally described and represented by a computer. The data type of an image controls the amount of information that the image can retain and therefore its displayed appearance. The ImagePals 2 programs read and write to the following types: Black & White, Grayscale, Indexed 16 and 256-Color, RGB True Color and CMYK True Color. (see pp. 43). RGB 8-Color images can also be read but they are automatically converted to Indexed 16-Color.

Dithering

Methods of making images with limited colors available appear to contain more. Most notably for making Black & White images appear to contain near-continuous changes in tone (gray shades). By arranging pixels of different colors close together, dithering can simulate colors not directly supported by an image data type. The various dithering techniques differ in the way they calculate and arrange new pixel values.

Dots per inch (DPI)

A unit of measure for screen and printer resolution that represents the number of dots a line can print or display per inch.

Embed

To create a copy of an object from one program, a server program, in the document of another program, a client program. The embedded object retains a copy of the object's native data and a link to its server program which may be edited directly from the client. (see Link, OLE.)

Export

The process of transferring information from one program to another.

File format

The ways in which a computer stores images or information on a disk.

Filters

Algorithms that manipulate the values of pixels to produce special effects.

Graphics file

A file whose data is composed largely of vector graphics. Vector graphics do not have a basic component, like a pixel, but are defined as lines between points, and fills between lines.

Grayscale

Something that contains solely shades of gray. For an image this normally means 254 different grays plus black and white: 256 "grays" in all.

Halftoning

A method of using a pattern of black and white dots to produce what appears to be shades of gray. This is a common form of dithering.

HiColor

For images, this normally means a 16-bit (5-6-5) data type that can contain up to 65,536 colors. TGA file formats support images of this type. Other file formats require prior conversion of a HiColor image into True Color. For displays, HiColor normally refers to 15-bit (5-5-5) display adapters that can display up to 32,768 colors.

HSB color model

A color model that specifies colors in a way that is easier for us to visualize than the RGB model. H in HSB represents the hue, or basic color; S represents the saturation, or purity of the color; and B represents the brightness, or amount of light the color appears to emit. (See Saturation, Brightness)

Hue

The hue of a color describes whether a color is basically red, orange, yellow, green, turquoise, etc. In ImagePals 2, the Hue is specified in degrees (from -0° to 359°.)

Image

In computing terms, an image is picture that is represented on screen as a collection of "dots". (See Pixel.)

Import

The process of incorporating information from one program into another.

Indexed-Color

An Indexed-Color image is represented by each pixel having four bits (16-Color) or eight bits (256-Color).

Link (OLE)

To create a reference in the document of a client program to an object in a server program. The linked object can be edited directly from within the client program. When the object changes in the server program, the changes are automatically reflected in the client program.

Mask

A mask is a selection marquee. This marquee can be defined by a selection tool or generated from the contours of a Grayscale image.

Object (OLE)

An object is data that is created or edited in one program and then placed into a document of another.

Object Pool

A storage area used in Image Editor that allows you to store, browse or retrieve image and mask objects.

OLE (Object Linking and Embedding)

A function developed by Microsoft as a means of transferring and sharing information (objects) between programs. OLE differs from cut, copy and paste operations in that the object in the client program retains a link to the server program it originated from.

Pixel

The smallest unit in an image. Computer images are made up of rows of pixels, each of which can be a different color. Pixels are normally so small that you see the image created by a collection of them.

Prime colors

The prime colors are the basis of the RGB color model: red, green, and blue. With different amounts of each of these colors, on screen, it is possible to create any other color.

Raster (see Bitmap)

Resolution

The resolution of an image determines the size of the individual pixels in an image and thus the size of the whole image. Resolution is shown in pixels per inch (ppi) or dots per inch (dpi).

RGB color model

A color model used to define colors by specifying the red, green, and blue components of colors. This is one of the standard color models used to specify and record colors on a computer. (See Color model.)

Saturation

Saturation defines the purity of a color. A color with a high saturation appears very intense and strong; a color with a low saturation appears washed-out.

Server program (OLE)

A server program allows you to take objects from it and place them into a document in another OLE client program. Album and Image Editor can both act as server programs. (see Client, OLE.)

Thumbnail

A small, low-resolution representation of an image.

True Color

Something that can display enough colors to appear "True" to life. For an image this normally means 24-bit color, providing up to 16.7 million colors. (See Bit.)

Vector graphics (see Graphics file.)

. ***Index***