1. **WPG - WordPerfect Bitmap (\*.wpg)**

Graphic created by WordPerfect, a word processing program; can contain both vector and bitmap image data and may include up to 256 colors; may also contain Encapsulated PostScript (.EPS) information; often used for clipart images that are embedded into word processing documents.

The WPG format is used primarily by WordPerfect, and it is supported by other Corel applications, such as PaintShop Pro and the CorelDRAW Graphics Suite. Free programs that can open WPG files and convert them to other image formats include Inkscape and Perfectspot. The Libwpg project also provides a free C++ library for converting WPG graphics to other formats.

libwpg is a C++ library to read and parse graphics in WPG (WordPerfect Graphics) format. It is cross-platform, at the moment it can be built on Microsoft Windows and Linux.

1. **Computer Aided Acquisition and Logistics Support (.\*CAL)**

Pixel formats: 1 bit/pixel.

Compression: CCITT Group 4 (T.6) fax compression.

Meta info: Name, Comment, Density.

Notes: Only "type I" files are supported.

CAL is an image file format used by CALS. CAL files are compressed bitmap formatted files used for storing monochrome images. CAL files were developed in the 1980s to standardize graphics data interchange for electronic publishing for the federal government.

.cal format is defined by the Department of Defence. Raster images of this type are two color and are used primarily in Pentagon archives.

**3. PHOTOSHOP - Adobe Photoshop (\*.psd)**

A .PSD file is a layered image file used in Adobe PhotoShop. PSD, which stands for Photoshop Document, is the default format that Photoshop uses for saving data. PSD is a proprietary file that allows the user to work with the images’ individual layers even after the file has been saved.

When an image is complete, Photoshop allows the user to flatten the layers and convert the flat image into a .JPG, .GIF, .TIFF or other non-proprietary file format so it can be shared. Once a PSD image has been flatten by conversion, however, it cannot be converted back to PSD and the user can no longer work with the image's layers. It is important, therefore, so always save the .PSD file and not overwrite it during conversion.

**4. DIB - Device Independent Bitmap (\*.dib)**

DIB is a graphics file format used by Windows. DIB stands for “Device-Independent Bitmap.” DIB files are bitmapped graphics that represent color formats. Similar to .BMP format, except they have a different header. DIB files can be opened and edited in most image editing programs.

DIB is a raster graphics image file format used to store bitmap digital images, independently of the display device (such as a graphics adapter)

The BMP file format is capable of storing 2D digital images of arbitrary [citation needed] width, height, and resolution, both monochrome and color, in various color depths, and optionally with data compression, alpha channels, and color profiles. The Windows Metafile (WMF) specification covers the BMP file format.[4] Among others wingdi.h defines BMP c onstants and structures.

**5. SCITEX - SciTex continuous Tone (\*.sct)**

CMYK or grayscale raster image created on a Scitex workstation or with Adobe Photoshop; often used for large files created in high-end prepress workflow; saved in an uncompressed format to maintain full image quality.

Raster image file format.

Used for pre-press imaging applications.

SCT is an acronym for Scitex Continuous Tone.

Binary format.

Stores images as RGB, CMYK, or grayscale bitmaps at a resolution of 8 bits per channel.

Does not support alpha channels.

Developed and maintained by HP Scitex.

**6. PCX - ZSoft Painbrush (\*.pcx)**

PCX is one of the most widely used storage formats. It originated with ZSoft's MS-DOS- based PC Paintbrush, and because of this, PCX is sometimes referred to as the PC Paintbrush format. ZSoft entered into an OEM arrangement with Microsoft, which allowed Microsoft to bundle PC Paintbrush with various products, including a version called Microsoft Paintbrush for Windows; this product was distributed with every copy of Microsoft Windows sold. This distribution established the importance of PCX, not only on Intel-based MS-DOS platforms, but industry-wide.

The original PCX format (starting with v2.5 of PC Paintbrush) stored graphics and images with no more than 16 colors, due to the limitations of Enhanced Graphics Adapter (EGA) display technology produced by IBM. When IBM introduced the Virtual Graphics Array (VGA) display adapter, the PCX format was revised to store graphics and images with up to 256 colors.

**7. DCX - Intel Format (\*.DCX)**

Digital Communications Associates (DCA) and Intel have designed the DCA/Intel Communicating Applications Specification (CAS). It defines a standard, high level programming interface for data communications applications. The DCX format is the standard file format for storing FAX images in CAS.

Intel based PCs running applications supporting the DCA/Intel Communicating Applications Specification (CAS).

PMView supports DCX in compliance with the DCA/Intel Communicating Applications Specification Version 1.2.

Technical Information

DCX files are a series of one or more PCX files. However, since DCX is designed to store FAX data only, the following restrictions apply to DCX files:

The image must be black and white. Shades of gray or color are not allowed.

The width of an image must not be greater than 1,728 pixels

 The recommended maximum height of an image is 2,200 pixels

DCX is a container file format for PCX files, defined by Intel. The DCX format is commonly used in fax applications. The DCX decoder can read files containing 1, L, P, or RGB data.

|  |  |
| --- | --- |
| Type | Bitmap |
| Colors | Mono, 4-bit, 8-bit, 24-bit |
| Compression | RLE, uncompressed |
| Maximum Image Size | 64Kx64K pixels |
| Multiple Images Per File | No |
| Numerical Format | Little-endian |
| Originator | ZSoft, Microsoft |
| Platform | MS-DOS, Windows, UNIX, others |
| Supporting Applications | Too numerous to list |

**8  XPM - X PixMap (\*.xpm)**

X PixMap (XPM) is an [image file format](http://en.wikipedia.org/wiki/Image_file_formats) used by the [X Window System](http://en.wikipedia.org/wiki/X_Window_System), created in 1989 by Daniel Dardailler and Colas Nahaboo working at [Bull Research Center](http://en.wikipedia.org/wiki/Groupe_Bull) at [Sophia Antipolis](http://en.wikipedia.org/wiki/Sophia_Antipolis), France, and later enhanced by Arnaud Le Hors

Used to store X Window pixmap information to a disk file.

|  |  |
| --- | --- |
| Type | Bitmap |
| Colors | Unlimited |
| Compression | Uncompressed |
| Maximum Image Size | NA |
| Multiple Images Per File | Yes |
| Numerical Format | NA |
| Originator | Groupe Bull |
| Platform | X Window |
| Supporting Applications | XPM Library |

**9. RAST - Sun Raster Image (\*.ras)**

Sun Raster was a [raster graphics](http://en.wikipedia.org/wiki/Raster_graphics) file format used on [SunOS](http://en.wikipedia.org/wiki/SunOS) by [Sun Microsystems](http://en.wikipedia.org/wiki/Sun_Microsystems).

|  |  |
| --- | --- |
| Type | Bitmap |
| Colors | Variable |
| Compression | RLE |
| Maximum Image Size | Variable |
| Multiple Images Per File | No |
| Numerical Format | Big-endian |
| Originator | Sun Microsystems |
| Platform | SunOS |
| Supporting Applications | Many UNIX-based |

**10. TGA - TrueVision Targa (\*.tga)**

|  |  |
| --- | --- |
| Type | Bitmap |
| Colors | 8-bit, 16-bit, 24-bit, 32-bit |
| Compression | RLE, uncompressed |
| Maximum Image Size | None |
| Multiple Images Per File | No |
| Numerical Format | Little-endian |
| Originator | Truevision, Inc. |
| Platform | MS-DOS, Windows, UNIX, Atari, Amiga, others |
| Supporting Applications | Too numerous to list |

The TGA (Truevision Graphics Adapter) format is used widely in paint, graphics, and imaging applications that require the storage of image data containing up to 32 bits per pixel. TGA is associated with the Truevision product line of Targa, Vista, NuVista, and Targa 2000 graphics adapters for the PC and Macintosh, all of which can capture NTSC and/or PAL video image signals and store them in a digital frame buffer. For this reason, TGA has also become popular in the world of still-video editing.

**11. IOCA - Image Object Content Architecture (\*.iss)**

The Image Object Content Architecture format was developed by IBM. This architecture provides a consistent way to represent images, including conventions and directions for processing and interchanging image information.

It is the image layer used to hold generic form images. These images are combined with formatted PTOCA data to provide context for the information. IOCA files can be single or multi-paged, and can act as a stand-alone image file or integrate with a MO:DCA file.

The default extension used by this format is: ICA.

This file format does not support stamps or Lossless JPEG compression, but it does support multi-page files.

**Open Source Libraries:**

* **ImageMagick++**

**FreeImage**

**Table : Representation of image formats and library support**

|  |  |  |
| --- | --- | --- |
|  | **FreeImage** | **ImageMagick** |
| **License Type** | http://opensource.org/licenses/  GPL-3.0 | http://www.imagemagick.org/script/  license.php |
| **Win 64 Support** | Y | Y |
| **Win 32 Support** | Y | Y |
| **WPG** | - | R |
| **CALS** | R | - |
| **PHOTOSHOP** | R | R/W |
| **DIB** | R/W | R/W |
| **SCITEX** | - | R |
| **PCX** | R | R/W |
| **DCX** | - | R/W |
| **XPM** | R/W | R/W |
| **RAST** | R | R/W |
| **TGA** | - | R/W |
| **IOCS** | - | - |