

## **PSGrfXXX Index**

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## **Credits**

This program was developed by Allen C. Kempe (CompuServe Id 71220,23) with the collaboration of Paul Hachey (CompuServe Id 76625,2644) who designed the Icon, original cover screen and provided many ideas which influenced the look and feel of PSGrfXXX and lent other invaluable assistance in the testing and development stages. The new cover screen included with version 2.0.134 and later is the work of Kyle Miller, 73172,1702 (Copyright 1994 by Kyle Miller).

This software is based in part on the work of the "Independent JPEG Group".

The following applies to the TIFF support provided by PSGrfXXX:

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The Index contains a list of all Help topics available for the Help Example. For information on how to use Help, press F1 or choose Using Help from the Help menu

## **Capture Menu**

The Capture menu includes commands that enable you to capture the contents of other windows, including those in other applications.

|                     |   |
|---------------------|---|
| <u>Window</u>       | Capture an entire window.                           |
| <u>Client</u>       | Capture only the client area of a window.           |
| <u>Full Screen</u>  | Capture the entire video display.                   |
| <u>Capture Hide</u> | Toggle option to hide PSGrfXXX while doing capture. |

## **Catalog Menu**

The Catalog menu includes commands that enable you to maintain and view the contents of catalogs of images.

For more information, select the Catalog menu command name.

|                        |   |
|------------------------|---|
| <u>Select Catalog</u>  | Add, delete, rename or select a catalog. Assign and delete passwords.     |
| <u>Catalog</u>         | Catalog an image; add, delete or update catalog entry.                    |
| <u>Browse</u>          | Browse through a catalog and search for specified criteria.               |
| <u>Build</u>           | Build a catalog via mass update.  |
| <u>Print</u>           | Print the contents of a catalog.  |
| <u>Thumbnail View</u>  | Display catalog as a grouping of small thumbnail images.                  |
| <u>Alpha Sequence</u>  | Display thumbnails in Alphabetic sequence.                                |
| <u>Display Hidden</u>  | Display hidden catalog entries.   |
| <u>Catalog Options</u> | Display catalog print options.  |
| <u>Set Keywords</u>    | Set default Keywords for updating catalog entries.                        |
| <u>Export</u>          | Export catalog to a comma-delimited file.                                 |
| <u>Import</u>          | Import catalog data from a comma delimited ASCII file.                    |
| <u>Rebuild Index</u>   | Rebuild a catalog index & recover lost disk space due to deleted records. |

## **Edit Menu**

The Edit menu includes commands that enable you to manipulate images, access the Windows clipboard and undo a previous operation..

For more information, select the Edit menu command name.

|                |  |
|----------------|--|
| <u>Copy</u>    | Copies an image or selected area to the clipboard.                 |
| <u>Cut</u>     | Cuts an area from an image and places it in the clipboard.         |
| <u>Crop</u>    | Crops an image .   |
| <u>Expand</u>  | Expands the size of an image.                                      |
| <u>Resize</u>  | Resize an image by a given percentage, rotate or mirror the image. |
| <u>Palette</u> | Pastes a palette saved on the clipboard.                           |
| <u>Paste</u>   | Copies an image from the clipboard.                                |
| <u>Undo</u>    | Undoes the last edit operation.                                    |

## **File Menu**

The File menu includes commands that enable you to open and save files, delete or move files, and to print.

For more information, select the File menu command name.

|                      |   |
|----------------------|---|
| <u>New</u>           | Create New Image                                      |
| <u>Open</u>          | Open a file.  |
| <u>Acquire</u>       | Acquire a TWAIN image.                                |
| <u>Select Source</u> | Select TWAIN source device.                           |
| <u>Save</u>          | Save a file.  |
| <u>Save As</u>       | Save a file and optionally convert to another format. |
| <u>Update</u>        | Update an OLE object                                  |
| <u>Close</u>         | Close the child window.                               |
| <u>Move</u>          | Move or copy a file.                                  |
| <u>Delete</u>        | Delete a file.  |
| <u>Launch</u>        | Launch another application.                           |
| <u>Print</u>         | Print all or part of an image.                        |
| <u>Print Setup</u>   | Select a printer                                      |
| <u>Tech Info</u>     | Technical Information                                 |
| <u>Exit</u>          | Exit PSGrfXXX   |

## **Option Menu**

The Option menu includes commands that enable you to set operating options.

For more information, select the Option menu command name.

|                           |   |
|---------------------------|---|
| <u>Image Options</u>      | Display image display and print options.      |
| <u>Display Status</u>     | Toggle display of status bar.                 |
| <u>Display Button Bar</u> | Toggle display of button bar.                 |
| <u>Center Image</u>       | Toggle Center Image option.                   |
| <u>Background</u>         | Set background color.                         |
| <u>DIB To Screen</u>      | Paint screen with DIBs.                       |
| <u>Display Warnings</u>   | Control display of warning messages.          |
| <u>Default Options</u>    | Set program startup default options.          |
| <u>Slide Show Options</u> | Modify slide show options.                    |
| <u>Thumbnail Options</u>  | Options controlling Thumbnail view.           |
| <u>JPEG Options</u>       | Options affecting JPEG images.                |
| <u>Auto Dither</u>        | Toggles automatic dithering option.           |
| <u>Verify Catalog</u>     | Toggles catalog index verify mode on and off. |
| <u>Photo CD Options</u>   | Optional KODAK Photo CD options.              |
| <u>MPEG Options</u>       | Options affecting MPEG images.                |
| <u>TWAIN Options</u>      | TWAIN options.                                |

## **Palette Menu**

The View menu includes commands that control how images are displayed.

For more information select the Palette menu command name.

Dib's Display image's palette in a special window.

System Display the system palette in a special window.

Change Palette Change palette.

Gray Palette Gray palette.

Adjust Palette Adjust Palette.

Dither Display options for dithering an image.

Set Play Rate Vary the speed at which a GIF87a animation "plays".

Display Histogram Display a luminance histogram for an image.



## **Window Menu**

This menu contains commands that allow you to manipulate PSGrfXXX windows.

|                             |   |
|-----------------------------|---|
| <u>Window Tile</u>          | Arrange all the non-iconic windows so they are positioned side-by side. |
| <u>Window Cascade</u>       | Arrange the non-iconic windows so they are staked on top of each other. |
| <u>Window Icons</u>         | Arrange iconic windows along the bottom of the main window.             |
| <u>Size Window to Image</u> | Restore an image's window to the size of the image.                     |
| <u>Close All</u>            | Close all open child windows.   |
| <u>Size to Image</u>        | Resize window to the image's dimensions.                                |

## **Glossary**

Bitmap

Clipboard

Color Resolution

Device Dependent Bitmap

Device Independent Bitmap

GIF

JPEG

Metafile

OLE

TWAIN

## **Edit Copy Command**

To copy an image to the clipboard, select COPY on the Edit menu. The selection will be grayed if no image is being displayed.



In order to copy part of an image, first locate the cursor at one corner of the area that you wish to copy, hold down the left mouse button and stretch the box (known also as a marquee) to encompass the desired area. Release the mouse button and then select COPY from the EDIT menu.

## **Edit Cut Command**

EDIT-CUT works similar to EDIT\_COPY except that it is only effective when an area has been selected using the mouse. When COPY is then selected from the EDIT menu, the area will be cutout and placed in the clipboard. The background where the image was cut will be painted to the current background color. (See OPTION BACKGROUND).

## **Edit Paste Palette**

This command can be used to replace the palette of the currently displayed image with the palette stored with the bitmap in the clipboard. Normally, data is pasted from the clipboard using the palette currently in use.

## Edit Paste Command

If there is compatible data in the clipboard, it may be "pasted" by selecting the EDIT-PASTE command. You can determine whether there is data in the clipboard by looking at the EDIT-PASTE menu entry. If it is "grayed", there is no compatible data in the clipboard.

Data to be pasted from the clipboard could have been put there by some other program, for example the Windows Paint program or by PSGrfXXX itself, earlier.



To paste data from the clipboard, select EDIT\_PASTE. The cursor will then change from an arrow to a crosshair. Move the crosshair cursor to the upper left corner of where you want to place the clipboard data.

When you are at the desired location, press the left mouse button and hold it down. While it is down, a marquee of the same dimensions as the clipboard data will be displayed. When the marquee is located where you desire, release the left mouse button and the clipboard data will be written to the screen at the location of the box.

When pasting another color image into the current image, the palettes of the two images must be the same or one or the other images must be converted to use the palette of the other. PSGrfXXX will prompt you if this is necessary. Otherwise, you can use the Palette Dither command to do this beforehand.

## **Edit Expand**

This command can be used to expand the area of an image so that additional images can be pasted together to form a larger image. Alternatively, an image can be cropped.



To change the size of an image, use the mouse to drag the window borders to the desired size. Then select **EDIT-EXPAND**. If the new borders are inside the old borders, the image will be cropped, otherwise it will be expanded. Edit Expand does not alter the aspect ratio of the image, this can be done with [Edit Resize](#).

The expanded area of the image will be colored to the Background color. (see [OPTIONS-BACKGROUND](#)).

Edit Expand does not alter the aspect ratio of the image, this can be done with [Edit Resize](#).

## **Edit Resize**

Use this option when you wish to resize an image (make larger or smaller) by a specific amount. You will be presented with a dialog box with two values to be inputted, one for the X (width) dimension percentage and the other for the Y (height) dimension. The default value for both is 100 (%). Accompanying each percentage input box is an alternative pixel size edit box which can be used as an alternative to the percentage change. Any change entered into the size box will be automatically reflected in the pixel size and vice-versa.

The height can be changed independently of the width and vice-versa allowing an image to be "stretched" one way or the other. For example to increase the width by 50%, type in 150 for the X dimension percentage and leave the Y at 100%. For best results, the increased or decreased image should be some multiple of the original, otherwise the image will be distorted.

Note: the default dimensions for Edit Resize are those of the physical window. Therefore, you may stretch the window out to the desired dimensions prior to selecting Edit Resize and then using these defaults to resize the image.

## **Flipping an Image**

Two check boxes allow for reversing the image along the Y axis (left - right) or along the X axis (top - bottom) or along both. If the X mirror checkbox is checked, the image will be reversed top to bottom and if the Y mirror checkbox is checked the image will be flipped left to right. Flipping along both axes is equivalent to rotating 180°.

## **Rotating an Image**

Rotation can be specified along with flipping or resizing. In the Rotate group box are four radio buttons, "none", "90°", "180°" or "-90°". If rotation is specified, the image will be rotated first and then the flipping and/or resizing will be done.



## **Edit Crop**



This command may be selected to crop the image to the dimensions of the current selection rectangle or the window borders. The selection rectangle can be drawn by holding the left mouse button down at the upper left-hand corner of the area that you want to enclose and then dragging the mouse to stretch the rectangle out. When you release the mouse button, the rectangle will stay on the screen and EDIT CROP can be selected to crop the image to the size of the rectangle.

## **Edit Undo**

Sometimes it may be desirable to "undo" the previous edit operation if the result is not what was desired.

PSGrfXXX saves the current image before performing any operation on it so it is possible to back up by selecting EDIT-UNDO..

Note: The undo buffer is only one deep. *You can only undo the last operation.* It would be wise to save your file at critical steps if necessary.

## **File Open Command**

Select this command to read and open a new image for viewing. If the file is cataloged, the CATALOG-BROWSE command may also be used to open a file.

Multiple selections may be made by clicking on each file that you wish to load. If desired, images may be initially displayed as iconic if the "Minimized"checkbox is checked.

PSGrfXXX will automatically specify a list of extensions to search for. This default extension list is loaded from WIN.INI whenever PSGrfXXX starts up; different file extension lists ("User Files") can be established for each catalog. If you do not want to default to certain file extensions when setting up a new catalog, the entry "Extensions=" under [PSGrfXXX] in the WIN.INI file and for each catalog in the Catalog Select command may be changed to suit your requirements. A valid file extension list is of the form "\*.xxx;\*.yyy;" etc. Note that each extension is separated by a semicolon ";".

## **Favorite Directories**

PSGrfXXX automatically keeps track of the 5 most recent paths selected by a File Open command. These paths are saved whenever PSGrfXXX ends and will be displayed the next time that PSGrfXXX is started. Whenever one of these selections, which are added to the end of the File menu are selected, the File Open Command will be initiated using that path as the default.

**Acquire**

Select this item to acquire an image from a TWAIN device. Refer to the documentation included with your device for details. If you have more than one TWAIN device installed, you must first select which device you want to use by using the Select Source command. If a TWAIN source is currently enabled, this menu selection will be grayed out; press ALT-TAB to bring its window into view.

## **Select Source**

This menu selection will present you with a list of TWAIN devices installed on your system from which you can select the desired one prior to using the Acquire menu selection to acquire an image. If this menu item is grayed, a TWAIN source is already enabled; press ALT-TAB to bring it into view and close the TWAIN source to enable the Select Source menu item.

## **File New Command**

Select this command when you wish to create a new image. File New will create a blank image that you can paste to from the clipboard. A dialog box allows you to size the image to the current window , the image stored in the clipboard or to any other size that you wish.

The "Reset to Window" button will reset the X and Y dimensions to that of the currently displayed window while "Reset to Clipboard" will reset the X and Y dimensions to that of the image in the clipboard ( if present). Otherwise you can enter the size of the new image manually.

Controls are also provided to establish the color resolution of the image ( 2, 16 , 256 or > 256 colors) and the palette which can either be a stock 16 or 20 color palette, a generalized 256 color palette or the palette from the clipboard.

## **File Print Command**

Select this command to print the currently displayed image. A portion of the image only may be printed by first using the mouse to (see Copy) select a rectangular area to print.

A dialog box enables you to scale the image by a percentage; or you may specify the picture size in pixels. The scaling can be specified differently for the horizontal and vertical dimensions. For your convenience, the picture's dimensions in inches will also be displayed. If your printer cannot directly print a color or gray scale image, the picture will be dithered if the "Dither" check box is marked.

Note: Printing takes a long time. Printing once initiated, can be canceled by pressing "Cancel" in the dialog box that is displayed while printing is taking place or a print job can be canceled via the Print Manager.

## **File Print Setup**

This command can be used to select which printer you wish to use for a subsequent print command. Depending upon the printer, you may also be able to set various printer options .

Use the **Options** button to change printer dependent options; for example graphics resolution or landscape mode. These options are a function of the print driver.



**File Save**

Use this command to save a file in the same format that it was read and without changing the name. This command will not be available for those file formats that are supported for read only.

## File Save As Command

Select this command to save an image or create a new copy of an image in a different format.

FILE\_SAVE\_AS defaults to the current filename. If you wish to change the name and/or directory, you may do so. You may select the output file format using the listbox provided in the File Save dialog.

## Graphic Formats:

Graphic formats supported by PSGrfXXX are:

- AVI Video for Windows (*optional component*)(**Read only**).
- BMP Windows bitmap format.
- CGM Computer Graphics Metafile (**Read Only**).
- CLP Windows clipboard file(**Read Only**).
- EPS Encapsulated Postscript imbedded TIFF preview images.(**Read Only**)
- FLI/FLC/CEL Autodesk animator animation files. (**Read only**)
- GIF CompuServe Graphics Interchange Format. PSGrfXXX supports both the GIF87a and GIF89a standard. ("The Graphics Interchange Format (C) is the Copyright property of CompuServe Incorporated. GIF(sm) is a Service Mark Property of CompuServe , Incorporated.")
- ICO Windows Icon. (**Read Only**)
- IFF/LBM/CE Deluxe Paint II LBM & IFF files. The file extension "CE" is created by Digital Vision's Computer eyes video capture product.
- IMG GEM/IMG (Digital Research) (**Read Only**).
- JPG JFIF format JPEG coded files.
- MID MIDI sound files.
- MAC Macintosh MACPAINT files(**Read Only**).
- PCD KODAK Photo CD (*optional component*) (**Read Only**) See Photo CD Options for image loading options.
- PCX Z-Soft Paintbrush files.
- RLE Compuserve Run Length Encoded file format.(**Read Only**)
- TGA Targa file format. (True Vision Advanced Raster Graphics Array)
- TIFF Tagged Image format.
- WAV WAVE sound files.
- WMF Windows metafiles.
- WPG WordPerfect Graphics.

NOTE: The AVI, MIDI, PCD and WAV formats are only available if you have purchased the AVI/PCD upgrade option. AVI (Video for Windows) requires that you have the Microsoft Video for Windows software installed on your PC. Reading Photo CD's requires a Photo CD capable CD-ROM drive on your PC or available via a network.

## Options

If there are any options for a given graphics format, an "Options" button will be provided. Many graphics formats allow for writing the output image in different levels of color resolution and various compression methods.

## Color Resolution Formats

Images can be saved in several resolutions:

- 1 BPP 1 bit per pixel or two colors, black & white.
- 4 BPP 4 bits per pixel or 16 colors.

8 BPP 8 bits per pixel or 256 colors.

24 BPP 24 bits per pixel or 16 million colors.

The Color resolution selected will determine the maximum number of colors in the saved image. If this is less than the current resolution of the image then the current colors will be converted to the nearest color available in the reduced resolution.

Not all file format and color resolution combinations are valid either because the combination is not supported or because the format specification does not provide for it. Invalid color resolution options will be "grayed" and cannot be selected.

GIF animation files cannot be saved. In this case what will be saved is the image that is displayed when File Save is invoked.

### **File Compression**

Although most of the file formats supported provide for compressing the pixel data, PSGrfXXX currently only supports compression for GIF, JPEG, PCX, TARGA & RLE and TIFF files. PCX, TIFF and TARGA files can be saved in either compressed or non-compressed format. The GIF format is always compressed. When PCX, TIFF or TARGA is chosen, a check box will be displayed.; if checked, the file will be compressed otherwise it will be written uncompressed.

JPEG files' compression ratio is defined as a "quality" factor in the Options dialog for this format. "75" is the default value and generally gives the best compression ratio with the least loss of detail. A value of 100 implies no compression. Values lower than 75 may result in unacceptable image degradation as JPEG is a "lossy" compression method in comparison to compression methods used for other graphics formats.

Although the format specification provides for several types of compression to be used for TIFF files, PSGrfXXX only writes files with Packbits compression for 2 color images and LZW encoding for 16 color or greater images.

## **BMP Options**

Select the color resolution and format, whether Windows or OS/2 PM.

## **FILE OPTIONS**

Select the desired color resolution and whether you want to compress the output file.

## **TGA Options**

Select the desired color resolution :8 bits per pixel - 256 colors or 24 bits per pixel - 16,000,000 colors. You also may choose whether to compress the file using RLE compression.

## **TIFF Options**

Select the desired color resolution: bits per pixel. You also must select whether you want the output file to be compressed or non-compressed. You also must select a "photometric interpretation" value. For most color images, "Palette" will be the most commonly used. For 24 bit images, you may select RGB. JPEG images provide for a choice of RGB or YCbCr.

Some of the compression and/or photometric interpretation options may not be interpreted or acceptable by many applications so it is advisable to test the resulting output file with the application that you intend to read the file. See also [JPEG Options](#) for more information.

## **GIF Options**

Select the desired color resolution and whether you want to write the file in interlaced format.

Turning GIF89a on results in adding the contents of the Description field in the catalog entry to the GIF file as comments. The catalog containing the item must currently be selected.



## **JPEG Options**

There are two options.: The spin buttons set the amount of compression.. 100 - no compression to 0 all compression. For most purposes, 75 is optimal and is the default. Lower values will result in smaller files with a corresponding decrease in image quality.

The Optimize Entropy Encoding option, if turned on, results in better compression but with a performance penalty; i.e. it takes longer.

## **WPG Options**

WPG files can contain bitmaps (raster images ) or vector drawing commands or both. The WPG file that will be created will contain a bitmap representation of your image even if it originally was a vectr type file. Creation of vector format WPG files is not supported at this time. The Bits per Pixel options will be applied to the bitmap contained in the WPG file.

If you select the "Use WPG Palette" option, the color palette of your image will be converted to a standard palette defined by WordPerfect. This may be necessary to cause the colors in your image to be rendered properly when imported into some applications.

## **File Delete Command**

Selecting this command will cause the currently displayed image to be deleted from its location on disk. If the file is present in the currently selected catalog, it will be deleted from there as well. FILE\_DELETE will not delete catalog entries from other than the current catalog.

## **File Move/Copy Command**

This command may be selected to move or copy the currently displayed file to another location. For example, to organize your files or to create a backup copy. The change of location will be updated to the catalog.

Move/Copy does not change the file's format. It simply copies the disk data from one location to another. "Move" implies that the original file will be deleted after copying. To copy, that is to say, end up with two copies of the file, select the Copy option checkbox.

If the file is located in the currently selected catalog, the catalog entry will be updated to reflect the new location of the file. If doing a move or copy and the file is renamed, the catalog entry will also be renamed.

## **File Close Command**

This command will cause the active Child window to be closed.

## **File Tech Info Command**

If an image is currently displayed, this option will display a dialog box that contains a scrollable window that lists various technical attributes of the file. Also, if any errors were encountered while reading the file, they will be displayed here.

The technical attributes of a file format may be significant when attempting to determine which specific format options are used. For example, if the file is compressed, it will be displayed here. PSGrfXXX does not support all permutations of format options for all files and of course is unaware of new options that might be added to a format specification in the future.

The format and content of the display is dependent upon the file format; some formats may display more information than others.

**File Update**

This menu selection replaces the File Save command when PSGrfXXX has been called as an OLE server. Executing this command will update the OLE client application with the image that you have selected.

## **File Exit Command**

Use this command to exit PSGrfXXX.



## **Catalog Select Catalog Command**

This command will cause a dialog box to be displayed that will enable you to select, add, delete or change the name of a catalog. You also can change certain attributes of a catalog such as the default file extensions, directory and add and delete passwords.

A catalog has a "Title" which can be anything that you wish it to be. It could be descriptive of the type of images, e.g. "GIF 640x480" or relating to a topic, e.g. "Nature". Each catalog has a DOS file name and path associated with it. This path will also be the default path for files in that catalog. Another property associated with a catalog is the default extensions for files that will be displayed in the File Open and Catalog Build dialogs.

The first time that PSGrfXXX starts up, it will create a catalog titled "Default" and named "PSGRFXXX.CAT" (its corresponding index is PSGRFXXX.CIX). The default catalog and its index will be located in the same directory as PSGRFXXX.EXE.

You may establish as many catalogs as you wish. The names of defined catalogs and their pathnames are saved in WIN.INI.

### **Select New Catalog**

PSGrfXXX can only work with one catalog at a time although different Thumbnail Views can each reference a different catalog. This requires you to "select" one of the catalogs that you have defined. Until you change the selection, this is the catalog that will be updated by any subsequent catalog commands.

If the catalog is password protected, you may enter the password here. Otherwise you will be prompted for it when the catalog is opened.

To select a catalog, highlight the desired catalog in the Catalog combo box. Make sure that the "Select New Catalog" radio button is checked and press "OK".

### **Change Catalog Title / Ext**

Highlight the catalog whose title you wish to change. You may also change the list of file extensions that will be displayed in the File Open and Catalog Build functions while this catalog is selected. You may also change the optional volume ID. Then check the "Change Catalog Title". Next, enter the new name in the Catalog Title edit box. Then press "OK".

When a new catalog is selected, the current directory will be set to that of the Catalog's file name. You may change a password by typing in a new one but you will still be prompted for the old password before the password will be changed.

Note: changes to the default extensions for a catalog will not be effective until that catalog is selected again.

### **Delete Catalog**

Highlight the title of the catalog you wish to delete. Then check the "Delete Catalog" radio button. Then press "OK".

A password is not required to delete a catalog.

### **Create New Catalog**

Press the "Create New Catalog" radio Button, fill in the title of the catalog in the New Title edit box. Next, enter a filename for the catalog. An extension is not necessary! Use the file list box to select a path to where the catalog should be placed, enter a list of file extensions to be in effect for this catalog and then press "OK".

An optional volume ID field is provided. If present, the volume label of the drive will be checked and you will be prompted to mount the requested volume if it is not already mounted whenever you open the catalog .

If you want to password protect the catalog, you may enter a password in the password entry box.

Note: It is suggested that the catalog be placed in the directory where the majority of the files that will be cataloged in this catalog because selecting the catalog will set the current directory to that of the catalog file name.

### **Default Catalog**

The default catalog, that is to say, the catalog that will be selected upon startup, is definable via the Option Default Options command.

### **Other Options**

The **Info** button can be used to display the current storage requirements of a catalog. From this information, it can be easily determined whether the catalog file would benefit from re-indexing.

Catalogs can be marked **Read only**. In this case, they cannot be updated or modified. The Catalog Build and Rebuild Index functions will not be allowed and Catalog Browse and Catalog Catalog will not allow any information to be changed.

## Catalog Catalog Command

This command can only be executed when an image is being displayed. This command is used to add or update an entry in a selected catalog. The previously selected catalog will be used but can be changed by selecting a new catalog with the Catalog combo box.

Selecting this option will bring up a dialog box with a number of fields that you can enter into. Other fields are updated by the program.

### User Fields

- Title This is the title of the image. If a GIF89a image has a title, it will be filled in automatically. The maximum number of characters that can be entered is 59, including carriage returns and line feeds.
- Keywords This field can contain a number, up to the length of the entry box, of keywords to be used for searching. These keywords can be used to select a list of files meeting requested search criteria. The maximum number of characters that can be entered is 87.  
Note: The default value for this field will be whatever keywords that were entered by using the Set Keywords\_dialog. The Keywords field defaults will be set only if it is blank which would be true for a new catalog entry or one that had never contained any Keywords data.
- Description This field can be used to enter any descriptive data concerning the file up to a limit of 60,000 characters. This field can be scrolled and edited using standard editing commands. If a GIF89a image has text data included with it, it will be placed here. To start on a new line while entering data, press CTRL-ENTER.

### Program Fields:

- Filename The name of the file. For Photo CD files, this is a fabricated name consisting of the hex representation of the CD's creation time and the image number on the CD. e.g., 29012A43.017 corresponds to the file IMG0017.PCD on the photo CD.
- Icon This is a postage size view of the image. Clicking on the image will cause it to be regenerated.
- Pathname The primary location (hard disk) pathname and volume label are displayed as well as the backup(floppy disk) location. Therefore, there can be two access paths for the file.
- Info The height, width, number of color bits and file format are displayed in a box in the lower left corner.

There are several functions which can be performed by pressing the following buttons:

- Catalog/Update Update the catalog; "Catalog" means that this is a new entry. If desired, the target catalog can be changed beforehand.
- Uncatalog Delete the catalog entry. This button will be grayed if there is no catalog entry to delete. This option does not delete the file itself.
- Cancel Cancels the dialog and returns you to the main menu.
- Move Moves the file to some other location.
- (image) The "thumbnail" image is itself a button. In Browse mode, clicking on the image will cause the image to be displayed in full screen mode.

Note: The above buttons are redefined if the dialog is entered via the CATALOG\_BUILD command.; "Catalog" or "Update" becomes "Next", Uncatalog becomes "Previous" and "Move" becomes "View".

## Catalog Browse Command

The CATALOG\_BROWSE command provides a dialog box listing the files in a catalog. The target catalog can be changed by selecting another catalog from the Catalog combo listbox.

There are a number of functions that can be applied to a file:

|                                  |   |
|----------------------------------|---|
| <u>M</u> ove / <u>C</u> opy File | The file can be moved or copied to another location.  |
| <u>D</u> elete File              | The file can be deleted from the hard disk. The file is also deleted from the catalog.  |
| <u>V</u> iew Image               | The file can be opened and viewed.  |
| <u>O</u> K                       | The catalog entry for the file can be viewed and updated. Double-clicking the file name is the same as pressing the OK button. When the catalog entry dialog is displayed, the OK , Delete and Move buttons are replaced by Prev, Next and View respectively. |
| <u>C</u> ancel                   | Cancels the dialog returning you back to the main viewing window.   |
| <u>U</u> ncatalog                | Deletes the file from the catalog only.   |
| <u>P</u> rint <u>C</u> at        | Prints the selected catalog entry.  |

## File Find

The File Find function can be used to build a list of file names for further viewing that meet certain criteria. Four different search criteria can be applied to a catalog to restrict the catalog list to a subset. There are three types of searches. a "New" search assumes that no files are selected and adds to the list, those files meeting the criteria. Another search option is to add new to the present list those files that meet the search criteria. A final search option is to remove those files that meet the criterial from an existing list. The four categories that can be used for the search are:

1. Whether a backup copy exists.
2. File Format, e.g. GIF87a, TIFF, PCX, etc.
3. Match on one or more keywords. (Keyword searches can also be extended to include the description in the catalog entry)
4. Match on special conditions, e.g. file size, width, height, number of colors or backup volume name.

The Find function can be accessed by pressing the Search >> button:



After a Find operation.

To search, place the desired search value(s) in either the Format edit box (29 characters max.), Special Conditions (87 characters max) or the Keywords (87 characters max) edit box. If nothing is put in a box, it will not be used in the search. The "Backup File" checkbox is a three-state control. If the box is gray, then it will have no affect on the search. If the box is blank, then all catalog records that do not have a backup location will be selected. If the box is checked, only those catalog records with a backup file location will be selected. The three search criteria are ANDed to select a record. That is to say, if search criteria 1 (Backup) is satisfied AND search criteria 2 (File Format) AND search criteria 3 (Special Conditions) AND search criteria 4 (keywords) are satisfied, the record will be selected.

Wild card characters "\*" & "?" can be used in search arguments. For example, to select all "GIF" files, the search argument "GIF\*" will select both GIF87a & GIF89a". Either spaces , Commas or the "|" character (to indicate a logical OR) may be used to separate search arguments. The underscore character "\_" may be used in place of a space in a search argument if that space is significant. For example STAR\_TREK will search for the string "Star Trek" while STAR TREK will hit on either "Star" or "Trek".

If you wish to select records based on two or more search criteria being true, separate them with an ampersand "&" character to indicate a logical AND operation. For example to select "CLIPART" and "ANIMALS" enter CLIPART&ANIMALS as your search criteria. In this case CLIPART AND ANIMALS must be found in a catalog entry for the expression to evaluate TRUE.

Search arguments can utilize parentheses. This makes it possible to generate complex search arguments containing many conditions. For example, the following expression can be used to select entries that contain "PLACES" and "OCEAN" or "BUILDINGS" and "PEOPLE". "(PLACES & OCEAN) | (BUILDINGS & PEOPLE)" Parentheses can be nested up to 9 deep; for example: "(PLACES & (OCEAN | RIVER))" to select those entries containing "PLACES" and either "OCEAN" or "RIVER".

In order to include in the search special conditions such as file size, image width, etc, PSGrfXXX has 5 special search arguments that can be used in the Format and Special Conditions boxes. Do not use one of these special codes in the Keywords box! The special codes all start with an "@" sign followed by a Code for the particular value to be tested for, an operator ( "<" - less than, "=" - equal , "#" - not equal, or ">" - greater than) , followed by the value to be tested for.

The valid codes are:

- "B" - backup volume name.
- "C" - number of colors, 2, 16, 256.
- "D" - date in the format defined as the short date format in the International section of Control Panel.
- "F" - the format of the entry, e.g.: "GIF87a", "TIFF", etc.
- "H" - height of image.
- "N"- the filename of the entry.
- "P" - primary path name
- "S" - file size in bytes.
- "W" - width of image.

Some examples:

@W=320 select images whose width is 320 pixels.

@D>01/03/1991 select all dates later than January 3, 1991.(default US date format)

@B=GIF0020 select all images residing on backup volume "GIF020"

@C>16 select all images with more than 16 colors.

@P=C:\PSGRFXXX\ select all images in subdirectory "C:\PSGRFXXX"

NOTE: The pathname in the catalog entry will contain the drive letter where the image was located when it was cataloged. However, if the image is now located on a different drive, the drive letters may not match. This could occur in a network environment or where a PSGrfXXX catalog has been built on a CD-ROM. In this case, a pathname search is more likely to succeed if the '?' character is substituted for the drive letter thus: "?:\PSGRFXXX\".

The catalog will be searched for records meeting the desired criteria when the Search button is pushed. At the completion of the search, the new catalog list will be displayed in the listbox. To change the search criteria, enter new search values and press Search again.

The modified catalog list will be in force until the "Show All" button is pressed, a new catalog is selected or another search operation is performed. The CATALOG THUMBNAIL VIEW command will only display the currently selected catalog entries.

## Catalog Build Command

This command provides the ability to select one or more files from a specified input directory for automatic updating to the catalog.

The list box will display those files in the selected directory that are not cataloged unless the **"Show All"** check box is marked. All files in the list can be selected for building by clicking on the **"Select All"** check box; all files will be highlighted. Any files that are not desired can be de selected by clicking on the file name. Clicking on the **"Select All"** box a second time will un-highlight all files. If the Follow Directory Tree checkbox is checked, the listbox will display all files in subdirectories of the current directory.

All highlighted files will be cataloged if they are not already. PSGrfXXX will not bother to read images into memory that are already cataloged unless the **"Force Update"** checkbox is checked.. File volume and pathname information will be updated for existing catalog records. This feature provides an easy way to update PSGrfXXX with information on backup copies of images stored on your hard disk. Just do a "Build" on the floppy disk in drive A or B and the backup location of the files will be quickly updated to the catalog. Another use for the "Build" command is to update the catalog to reflect the new locations of files on your hard disk after you have moved them outside of PSGrfXXX.

If the **"Auto Update"** option is selected. all of the files will be cataloged without any intervention; otherwise you will be prompted for each file so that you may fill in the Title, Keywords and Description entries. The Auto Update option is useful for mass updates or for initial creation of a catalog.

PSGrfXXX may halt for certain errors and warnings if the Option Display Warnings menu selection is checked. You may temporarily enable or disable this feature by checking the **"Stop on Error"** checkbox. You may also change the default setting via the Option Default Options command. This will prevent stopping the build process except for the most serious errors. Please keep in mind that processing 24 bit images may cause your computer to appear to "hang" while Windows processes the bitmaps.

When building a catalog, you may want to establish default values for the Keywords entry in the Catalog entry. This can be done by selecting Set Keywords. to establish the default value for subsequent catalog entries.

The catalog that will be updated can be selected by using the Catalog Combo listbox.

## Catalog Print Catalog

This command will print, the contents of a catalog in two different formats: four per page or an "alternate" format that will print an array of thumbnails with only their file names. The four per page format (assuming that the descriptions will fit along with the thumbnail) contains the "thumbnail" view of the image as well as text information such as title, description, keywords, image size, color resolution, file size, date, etc.

Only the "selected" entries in the current catalog will be printed. In order to print selected catalog entries, the Catalog Browse and/or the Thumbnail View commands can be used to limit the scope of printing by de-selecting or hiding entries which you do not want to print.

To print a single catalog entry, you can use the "Print Cat" button in the Catalog Browse command. To print more than one "selected" thumbnail, the desired images can be "marked" and printed via Thumbnail View - Process Thumbnail.

The Catalog Print dialog allows the user to also select the target printer and to select a font to be used. Provisions are also made for printing a selected range of pages. If, for example, you select pages 10-15, then only those pages will be printed. Pages 1-9 will be bypassed and printing will terminate after page 15 is formatted and sent to the printer.

**Important:** Printing requires sufficient disk space in your TEMP directory to build the image. This is particularly true of the HP Deskjet printer which may require as much as 6 megabytes of disk space. If you get an error "**Error during NEWFRAME**", there is a strong possibility that you have run out of temporary disk space.



## Catalog Print - Print Setup & Options

This dialog enables you to:

Printer setup where you can select a different printer or Print Setup options specific to your printer such as landscape or portrait mode, page size, etc. To do this select the "Setup" button. You will then be able to select another printer.

Select printing options such as the number of pages and the starting page of a catalog printout. You may choose from 3 options:

1. "All" This will cause all catalog entries to be printed or, if Catalog Print has been selected via the Process Catalog function of Thumbnail View, all marked thumbnails will be printed. In either case, only currently selected entries in Catalog Browse will be processed.
2. "Selection" If Catalog Print has been called from Catalog Browse, only the selected file will be printed.
3. "Pages" You can select a range of pages to print. You will then be asked to supply the first and last page number. If Catalog Print has been selected via the Process Catalog function of Thumbnail View, only marked thumbnails will be printed.

The format of the printout. Select "Options". Two formats are supported; the full format ("Complete Entries" radio button ) which includes a thumbnail image and text information such as Title, description, file location, etc., and the alternate format consisting of thumbnails only. ("Thumbnails" radio button) Setting the page margins and thumbnail size allows a wide range of paper sizes to be used.

Select fonts for catalog printing or formatting options for an image printout. This option can be accessed by selecting "Options".

When printing catalogs, a choice can be made between reading in the image to print the thumbnail image ("Use Thumbnails" checkbox checked) or using the existing catalog thumbnail image. The latter is faster but will give poorer results.

## **Print Image - Print Setup**

This dialog allows you to select various options affecting printing of the image.

You may select a new printer or change printer driver options by selecting "Setup".

The "Options" button may be selected to enable you to change options such as the placement of the image on the page, how it will be scaled, etc.

The paper size can be changed to suit your needs. Changing the paper size may require that you also change the page margins and/or thumbnail size. These variables may be changed by selecting "Options" from the Print Setup dialog after you go back.

## **Catalog Thumbnail View**

This command will create a window displaying a series of small "thumbnail" images in the currently selected catalog, side by side . The number of catalog entries displayed depends upon the size of the current viewing area; the maximum number of thumbnails can be displayed by maximizing the window. Also, the sizing border of the window can be moved to increase or decrease the viewing area.

The content of the display can be modified by utilizing the CATALOG SELECT to select a different catalog and selecting the CATALOG BROWSE , Search operation to limit the catalog list to desired entries. See also Thumbnail View Options. Multiple Thumbnail view windows may be opened if desired to display the contents of different catalogs at the same time.

The sequence of the images can be manually established by dragging the thumbnails to the desired location. If a second thumbnail view is active, thumbnails can be "dragged" to the second catalog to "copy" them to that catalog. Once this is done, you will have defined what is called a user-defined display sequence. See View Alpha Seq for more info.

## Thumbnail View Options



Thumbnails displayed can be viewed by clicking with the left mouse button on them; a new document window will be created for the image. (When PSGrfXXX has been called by another application via OLE, clicking on a thumbnail will cause the image to be selected as an embedded image in the OLE Client application.) Holding the right mouse button down while over a thumbnail will display a popup menu with eight options, INFORMATION, HIDE THUMBNAIL, MARK THUMBNAIL , VIEW, PRINT, PROCESS THUMBNAILS. LAUNCH APPLICATION and SLIDE SHOW.

- "Information" displays a dialog box with text information such as title, description, etc.
- "Hide Thumbnail" will delete the thumbnail from the screen just as if it were not selected. Hidden thumbnails can be restored by using the Catalog Browse command.
- "Mark Thumbnail" sets a flag for a later Recatalog option to act upon. (You also can double click on the title bar to mark/unmark a thumbnail.
- "View" will read in and display the image.
- "Print" will read in and print the image.
- "Process Thumbnails" option can be used to move act on marked thumbnails by uncataloging them. moving them to another catalog, copying the catalog entry to another catalog, printing them or moving or copying files to another storage location.
- "Launch Application" can be used to start another application using the selected thumbnail.
- "Slide Show" will display all marked slides sequentially in full screen mode.

## Moving Thumbnails

Individual thumbnails can be moved around the screen by holding the left mouse button on the title and dragging the thumbnail to the desired location. The thumbnail being "dragged" will be inserted ahead of the thumbnail that it is dropped upon. Moving thumbnails requires that the target thumbnail view is displayed in user defined sequence" order. Initially, the default sequence is alphabetic order. See [View Alpha Seq](#) for more info.

If more than one Thumbnail View is active, thumbnails can be copied between catalogs by dragging them as described above.

## Keyboard control

The Page-Up and Page down keys will scroll the thumbnail display through the catalog list.

The Up-arrow and down arrow will move the display up or down one line respectively.

Selecting VIEW-THUMBNAIL VIEW will cause any currently displayed image in the main viewing area to be erased.

## **Mark Thumbnail**

Selecting this option will "mark" the thumbnail for later action using the Process Thumbnails command. When a thumbnail is so marked, the Mark Thumbnail menu item will be checked. The title bar of a marked thumbnail is displayed with an asterisk "\*" before the name. Selecting a previously marked thumbnail will unmark it.

**Add Thumbnail**

This option is only active when the CATALOG - DISPLAY HIDDEN option is turned on which forces the display of all catalog entries, regardless of whether they have been not selected or hidden. This option allows the user to mark thumbnails that normally would not be displayed because they are hidden and to cause them to be displayed subsequently when the CATALOG - DISPLAY HIDDEN option is turned off.

## **Process Thumbnail**

This option may be selected to either move marked thumbnails' catalog entries to another catalog, copy the entries to another catalog or uncatalog the entries. In addition, marked thumbnails can be hidden, all thumbnails can be either marked or unmarked and finally to print marked thumbnails' catalog entries. When you select this option, you will be presented with a dialog box from which to select the target catalog for the move and copy options; the target catalog is not necessary for the other options which only operate on the current catalog.

The thumbnails to be operated on by this command(except for Mark & Unmark All) must have been previously marked with the Mark Thumbnail command; marked thumbnails will display an asterisk "\*" prefixed to the file name in the thumbnail's title.

See [Add Thumbnail](#) for information on how to display hidden or non-selected catalog entries.

## **Launch Application**

This command allows you to enter the necessary data in order to start another application. The three edit boxes are titled Program, File and Parameters.

You must enter into the Program edit box , the path and program name of the program that you wish to execute. The File edit box will default to the file name that you have selected. The Parameters edit box can be used to enter any parameters for the program that you wish to execute that should follow the file name.

When you have entered the necessary data, press OK to start the program.

See the user guide for information on establishing default program values by file type.



## **Slide Show**

This command will display all marked slides sequentially in full screen mode. To stop the slide show and return to the Thumbnail view, press ESC or click on the screen. As soon as the current image has been read from disk, you will get a dialog box asking if you wish to continue..

Image files that are to be viewed with slide show must be present on a hard disk. Images that are not on a hard disk will be bypassed with a beep. Although Slide Show can display any supported format, best results will be obtained by viewing \*.BMP files as these generally take the least amount of time to read in for display. Therefore a display of \*BMP files will be smoother.

There are several options that affect the slide show. These options can be modified via the Options Slide Show Options command.

When in Slide Show, the slide show can be terminated at any time by double-clicking with the left mouse button. When the "Pause between" option is active, double clicking with the right mouse button will cause slide show to proceed to the next slide. GIF89a animations that require user input to advance will recognize clicking the right mouse button.

The time that it takes from slide to slide will depend upon the time that it takes to read in the next image. For the smoothest operation, it is suggested that all images to be used in the slide show be Windows BMP files. These files will take the least time to be read into memory.

## **Catalog Display Hidden**

This command can be used to cause all of the entries in a catalog to be displayed regardless of whether the entry is hidden, or not selected. When in effect, it makes it possible to "unhide" or add an entry back to the thumbnail display by making all thumbnails visible.

## **Catalog Options**

This command will display a dialog box that enables the following options to be set:

Whether to print catalog entries using the thumbnail image in the catalog or to read in the image from mass storage. The latter results in better image quality but takes considerably longer.

Whether to dither color images when printing. This option is only necessary if the print driver does not produce half-tones or cannot print color images.

Print the "alternate" format with approximately 20 thumbnails per page.

Select the base font for printing the standard catalog listing.

## **Set Keywords**

Whenever a catalog entry is created or is updated and the Keywords field is blank, PSGrfXXX will use the current default keywords that can be set by exercising the Set Keywords menu selection. This option can also be exercised via the "Keywords" button in the Build dialog.

## Export Catalog

This command will create a comma delimited file from the currently selected catalog. Such a file can be read by many spreadsheets and database programs. Using such a program, you can then create customized listings, analysis or other actions of your choosing.

After selecting this command, you will be presented a dialog box where you can enter or select the file name and path of the exported catalog file.

There are two output formats. If the "Import Form" checkbox is not checked, the format of the exported file is as follows:

*File name*  
*Title*  
*Width*  
*Height*  
*Number of Colors* (2, 16, 256 or >256)  
*Format*  
*Primary path*  
*Primary volume name*  
*Backup path*  
*Backup volume name*  
*Keywords*  
*File size in bytes*  
*File creation date*  
*File creation time*  
*Description*

Note: Results may be unpredictable if the Title or Description entries in a catalog entry contain commas or double quotes, carriage returns or line feeds. For example, the program reading the file may not be able to differentiate between a comma that separates one entry from another and a comma imbedded in an entry. The alternate output format (described below) converts all such characters to special escape sequences. However, the escape sequences themselves may not be meaningful to another program but will be treated as text values. The description, which is the component most likely to contain such characters is optional and can be omitted from the output file.

An alternate output format can be selected by checking the "Import Form" checkbox. This format of the output file is compatible with the Import function and contains the following fields:

*File Name*  
*Title*  
*Description*  
*Keywords*

The alternate format converts imbedded quotes, carriage returns and line feed characters in the Title and description fields to the form expected by the Import function. For example, a carriage return is represented as "\r" and line feed as "\n".

Both forms of the Export command will only output entries for currently selected catalog entries.

## Import Catalog

The import command will update entries in the currently selected catalog with data from an ASCII comma-delimited file. This file can be output from another program such as a database or spreadsheet program or can be created by a text editor or wordprocessing program.

The input test file consists of one or more records terminated by a carriage return and/or line feed character. Each record consists of 4 fields separated by commas. the fields are:

File name

Title,

Description

Keywords.

Only the File name field is mandatory

Catalog entries will be updated subject to the following rules.

1. If there is no catalog entry for the file name, one will be created. This catalog entry will not have a thumbnail image or any of the information other than that which is being imported. A catalog build or a manual catalog operation will have to be done later to fill in the missing information.
2. The data in the import fields will replace any existing data in the catalog entry except that a null import field will not replace an existing catalog field. A null field is one that contains no data between the delimiter characters or commas delimiting a field.
3. Import fields cannot contain commas unless they are delimited by double quotes. If it is desired to have double quotes within an import field, then the special sequence \" must be used wherever a quote should appear in the updated catalog record. Likewise, carriage returns and line feeds that are part of a description entry must be represented by the special sequence \r and \n respectively. If a backslash character is wanted, it should be coded as \\.
4. Keywords should be separated by spaces. Keywords need not be capitalized.
5. There is no length limit on the length of a record for one catalog entry. However, since many text editors limit the length of a line to 256 characters or less, a means has been provided to break a line into multiple segments. This is done by ending an intermediate line with a backslash ". The next line in the file will then be appended to this line when it is read in by the import function.

The following is an example of an input record:

```
flowers.gif,This is the title,"This is the \"Description\" entry\  
and it is continued on this line.\r\nThis is a new line.",FLOWERS ROSE
```

Note the commas separating the file name, title, description and keywords fields. The title does not have quotes for delimiters since it has no commas imbedded in it. The description field is delimited by quotes, is continued to a 2nd line (note the backslash continuation character at the end of the first line) and contains imbedded quotes, a carriage return and a line feed character.

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## Catalog Rebuild Index Command

This command should be used when it is necessary to recover lost disk space in a catalog. This may be necessary after doing a lot of maintenance to catalog entries, particularly editing and adding to descriptions. When the catalog record is re-written, the space previously allocated in the file for the record is not used and either a previously deleted record that is large enough is used or the file must be expanded.

CATALOG-REBUILD re-writes the catalog and eliminates any deleted records resulting in a smaller catalog file and index.

It is recommended that a backup of the catalog (\*.CIX and \*.CAT files ) be made before CATALOG -REBUILD is executed.

The Catalog Rebuild command can only be run when no thumbnail views or images are displayed to avoid the possibility of modifying a catalog that currently is in use. For this reason, this option is only available when no windows are open.

**Note:** The Catalog Rebuild Command creates temporary work files that have names starting with ~PXCnnnn.TMP and ~PXInnnn.TMP where "nnnn" is some random number. These files are the newly created catalog and index respectively. In the event that the Catalog Rebuild should fail, these files may be left on your hard disk and taking up considerable space. Normally, they would be deleted when the function ends. The files will be written on which ever hard drive on your system which has the most free space.

## **Options Options**

This command is available whenever an image window is the current MDI window. It will display a dialog box showing the status of options relating to the display of the image. Also, print scaling and positioning parameters can be specified prior to printing the image.



## **Options Display Status**

This menu item toggles the display of the status bar at the bottom of the main window on and off.

## **Options Display Button Bar**

This menu item toggles the display of the button bar on and off.

The user can modify the sequence and composition of the button bar by manually editing the "Buttonxx" entries in the [PSGrfXXX] section of WIN.INI or PSGRFXXX.INI. "Buttonxx" entries must be sequentially numbered starting with 1.

## **Options Center Image**

This menu item controls whether an image will be displayed centered in a maximized or full screen window or whether it will be displayed in the upper left hand corner.

## **Options Background Command**

This command can be used to select a background color to be used when an image is resized with the EDIT\_EXPAND command. It presents a dialog box that can be used to establish a custom color.

The default background color when PSGrfXXX starts is Green. The background color may change due to reading in an image that specifies a background color. GIF files do specify a background color.

The background colors that can be selected will be one of the colors in the image's palette.

If the Solid Background check box is checked, the background will be written with a solid color. Otherwise, a dithered color will be used.

## **Options DIB To Screen**

This option controls the way that PSGrfXXX displays images. If this option is checked, the screen will be painted directly using the current Device Independent Bitmap (DIB) rather than a device dependent bitmap (DDB). Displaying a DIB is slower than displaying a device dependent bitmap. However, the downside is that there could be a lengthy delay, especially when 24 bit color images are read in, while the device dependent bitmap is being created.

**Stretch to Fit Window**

When this option is selected, images will be shrunk or stretched to fit the screen, keeping the proper aspect ratio. Otherwise the image will be displayed with horizontal and/or vertical scroll bars which will allow the whole image to be viewed.

## **Options Display Warnings**

This option toggles on or off the display of certain warning messages. Once you have experience with PSGrfXXX, you may wish to turn this option off.

Any change to this option affects only your current session of PSGrfXXX. The default value upon startup can be set via the Option Default Options command.

## **Options Auto Dither**

If this option is turned on, any image that is read in will be automatically dithered if its color resolution is greater than the current video display. For example, if you are using the standard VGA driver shipped with Windows, which only supports 16 colors, you can still view 256 color GIF images by dithering them. Likewise, if you have a display capable of 256 colors, PSGrfXXX will dither to 256 colors, 24 bit TGA, TIF and PCX images if the auto dither option is turned on.

It should be noted that PSGrfXXX maintains the original color data if the image is dithered so that the file can still be saved in other formats without losing color information. If you wish to save a dithered image, dithered, you must utilize the View Dither Color Image command .

**Note, Dithering is slow! Dithering a large 24 bit image to 256 colors may take the considerable part of an hour!**



## **Options Verify Catalog**

This option is provided to enable verification of the catalog index as it is opened. This option should only be turned on if it is suspected that the catalog has been corrupted.

When this option is on, as each catalog index record is read, the corresponding catalog record is also read and checks are made to insure that they agree. If they don't, the bad records are removed from the catalog.

Note: with this option enabled, it will take much longer to open a catalog. Once the catalog has been read in, the option should be turned off.

## **Options JPEG Options**

This menu item allows the user to select 2 options affecting the reading of JPEG files.

### **Pixel Smoothing**

Turning this option on causes some extra optimization of the image that will result in better image quality at the expense of additional processing time.

### **2 Pass Color Quantization**

Turning this option on results in a 2 pass process for mapping 24 bit JPEG images to 256 colors resulting in better image quality at the expense of additional processing time.

## Options Slide Show Options

This dialog provides for setting and changing the following options:

1. Minimum delay between slides. This is the minimum amount of time that a slide will be displayed before reading in the next slide. A given slide may be displayed longer if the next slide takes longer than the minimum delay time to be read.
2. Minimum number of animation passes. For FLIC animations, this controls the number of times that an animation sequence will be repeated.
3. Display file name. Controls whether or not to display the file name on the screen.
4. Pause between. Whether or not to automatically proceed from one slide to the next. If pause is specified, the right mouse button must be double-clicked to proceed to the next slide.
5. Repeat slide show until manually terminated.
6. Whether or not to display the cursor.

If you have the optional PCD/multimedia add-on product, several more options are available:

1. Sound Visual - display placemaker thumbnails (and the file name and keywords, if enabled) when playing a MIDI or WAV file.
2. Wait for Sound- Either wait for the MIDI or WAV file to play or proceed to the next image. However, sounds cannot play concurrently with AVI or MOV files so in this case, the sound will complete before the AVI or MOV file is played.
3. Delay after playing a sound. If turned off, sounds will complete and then the next image will be displayed. Otherwise the same "minimum-between-slides" delay will be applied. This option is meaningless if Wait for Sound is turned off.

Slide Show Options are stored in the .INI file and will be recalled the next time that PSGrfXXX is started.

## **Thumbnail View Options**

You can select here whether to automatically close open image windows when a new window is opened in Thumbnail view by double-clicking on a thumbnail. You also can select the size of the displayed thumbnails (normal, 1.5x or 2x)

### **Options Auto Close**

Select this option to have PSGrfXXX automatically close open image windows whenever a new image is opened. This will prevent the accumulation of numerous open images hidden by the thumbnail view. If these images aren't closed, you eventually may run out of memory.

### **Options Thumbnail Normal**

Display thumbnails normal size.

**Options Thumbnail 1.5 x Normal**

Display thumbnails 1.5 times the default size.

**Options Thumbnail 2 x normal**

Display thumbnails 2 times their default size.



## Options Startup Options

This command displays a dialog box enabling you to establish startup options that take effect when PSGrfXXX is started up. The options that can be set are:

1. Default Catalog, the initial catalog that will be selected.
2. Default file extension list that will be used to set up the corresponding option in the Select Catalog function when a catalog is created. An extension file list is a series of wildcard file specifications. Multiple selections can be made; each selection must be separated by a semicolon ";". An example is: **"\*.GIF; \*.TGA"** to display GIF and Targa files.
3. The default subdirectory that will be in effect initially. Once a new catalog is selected, the current directory will be set to that of the catalog. If this option is not specified, the initial subdirectory will be that of the default catalog.
4. Warning messages are to be displayed. Warning messages for the *session only* can be changed via the Options Display Warnings command.
5. Background type is to be a solid color or a dithered color.
6. Center Image option.
7. Display directly to screen. (DIB to Screen).
8. Fit images (shrink or stretch) to the current screen size.
9. Options to disable PSGrfXXX's native support for CGM, DRW, EPS/TIFF and WPG files allowing these file types to be processed by a Graphics import filter. Graphics import filters are programs supplied with other software such as Word for Windows that PSGrfXXX can use to read image types that it otherwise can't read. See the user guide for more information.

## Photo CD Options

Photo CD's are stored in such a way that they can be loaded in several sizes and with a variety of palette options.

The following resolutions may be present (depending upon the image):

PCD\_BASE\_OVER\_16 192 x 128 pixels

PCD\_BASE\_OVER\_4 384 x 256 pixels.

PCD\_BASE 768x512 pixels.

PCD\_4BASE 1536 x 1024 pixels.

PCD\_16BASE 3072 x 2048.

PCD\_64BASE 6144 x 4096.

The above sizes are reference sizes. The actual image may differ depending upon how it was originally scanned and stored. Images also may be rotated because their format is portrait as opposed to a landscape format. When this happens, the Photo CD software will automatically display the image so that it is displayed top up.

Images may be loaded using three different palette options:

PCD\_SINGLE The image will be rendered as a 256 color grayscale.

PCD\_RGB The image will be rendered as a 24 bit RGB image. This option should not be selected unless your video driver can display 24 bit images because Windows will take extremely long to display the bitmap.

PCD\_PALETTE The image will be displayed as a 256 color image and a default palette will be provided.

Since PCD images are stored in a number of formats, it is possible to select a portion of an image viewed at one resolution and read the selected portion in at a higher resolution. To do this, first read the image in at some desired resolution, for example, PCD\_BASE Then use the mouse to draw a marquee encompassing the desired area. Next, select a new (probably higher) resolution such as PCD\_4BASE and then use File Open to open the same image again. The area selected in the first images will be read in at the new resolution. Doing this will eliminate the loss of detail that would occur if the Edit Resize/Crop options were used.

## **PCD BASE OVER 16**

This is the smallest of the photo CD resolution options. The image will be loaded with a size of approximately 192 x 128 pixels. The image size is 1/16th of the Base (768x512) resolution.

## **PCD BASE OVER 4**

This photo CD resolution setting will result in a nominal image size of 384x256 pixels. It is 1/4th of the Base resolution.

**PCD BASE**

This photo CD resolution setting will result in a nominal image size of 768x512 pixels.

**PCD 4BASE**

This photo CD resolution setting will result in a nominal image size of 1536 x 1024 pixels.

## **PCD 16BASE**

This photo CD resolution setting will result in a nominal image size of 3072 x 2048.

Note: Many PC's will not be able to read in an entire image this large due to memory constraints; the resulting bitmap will require over 6 megabytes of memory (or 18 megabytes if the RGB palette option is selected). However, portions of the image can be read in by first selecting an area in the image read in at a lower resolution and then opening the image again at this resolution.

## **PCD 64BASE**

This photo CD resolution setting will result in a nominal image size of 6144 x 4096.

Note: Many PC's will not be able to read in an entire image this large due to memory constraints; the resulting bitmap will require over 25 megabytes of memory (or 75 megabytes if the RGB palette option is selected). However, portions of the image can be read in by first selecting an area in the image read in at a lower resolution and then opening the image again at this resolution.



**PCD SINGLE**

This photo CD palette option will result in a grayscale image being displayed.

## **PCD RGB**

This photo CD palette option will cause the image to be read in 24 bit R-G-B format. If your display is not capable of displaying 24 bit images, you probably don't want to select this option as Windows 256 color display drivers take an extraordinary amount of time to render such images. However, if you want to save a photo CD image with 24 bit color resolution to some other format such as TIFF or TGA, you must select this palette option to avoid losing color information.

Photo CD images are stored using the YCC color model and when one is read in, it is converted to the RGB model and gamma color correction will be applied automatically.

**PCD PALETTE**

When this photo CD palette option is selected, the image will be loaded in and rendered as a 256 color (8 bit) image. A default palette will be used.

## Select Lookup Table (LUT)

This option allows you to select an alternate Lookup Table (LUT) when reading a Photo CD Image. The LUT determines the tone (lightness and contrast) of a Photo CD image.

The default LUT (equivalent to MSETUP4.LUT) produces RGB values for a display device gamma of 2.2. There are nine LUTs provided as ASCII text files. These LUTs are named *msetup1.lut* through *msetup9.lut*. The lower numbered tables are for lower-gamma monitors. The table that produces the best image display in your situation depends not only on your monitor setup, but also on such factors as your monitor viewing environment.

Once you have selected an LUT, the Default LUT and Alternate LUT entries will be enabled allowing you to switch back and forth between the default and the alternate LUT that you have selected for reading in subsequent Photo CD images.

You can create your own LUT with a text editor. It is simply an ASCII text file containing up to 512 entries, each separated by a space. All values must be between 0 and 255, inclusive. Array values should increase monotonically (by zero or 1) to avoid posterization effects. Out-of-gamut pixels are clipped to the values in the first and last elements of the array.

**Default LUT**

This option restores the default LUT for reading in subsequent Photo CD images.

**Alt LUT**

This option will cause the LUT selected by the Select LUT option to be used for reading in subsequent Photo CD images.

## **Options MPEG Options**

This menu option allows the user to select from several different algorithms to display MPEG images. MPEG is only available in 32 bit versions of PSGrfXXX.

## **Options TWAIN Options**

This menu option allows the selection of one option relating to TWAIN support. This option controls whether a TWAIN source will be automatically closed when used.



## **Capture Window**

Selecting this function will allow you to capture the contents of a window from any application and create a PSGrfXXX image view window. You can then save this window if desired.

When you select this option, the cursor will change to a distinctive window outline shape. Position this cursor over the window that you wish to capture and click the left mouse button.

**Note:** If you wish to select a dialog box for a capture operation, you must click on the frame or tile bar or outside of any control (button, checkbox, listbox, etc) of the dialog box. Clicking on a control in a dialog box will result in only the control being captured.

## **Capture Client**

Selecting this function will allow you to capture the contents of the client area of any application's window. See [Capture Window](#) for more details.

## **Capture Full Screen**

This function works similar to [Capture Window](#) and [Capture Client](#) except that it captures the entire screen.

## **Capture Hide**

This option toggles on or off the ability to hide PSGrfXXX while capturing a window. If enabled, PSGrfXXX will be restored once the capture is complete.

See: [Capture Window](#), [Capture Client](#) and [Capture Full Screen](#).

**Palette Dib's Palette**

Select this option to open a window that will display the palette for the currently active image window.

## **Palette System Palette**

Select this option to display the current system palette.

## Palette Change Palette

This command allows you to adjust the brightness and/or the contrast of an image. Which option is selected is determined by the state of the two radio buttons labelled "Brightness" and "Contrast."

The brightness has a range of -200 to +200 and the contrast has a range of -10 to +10. A positive value for brightness will brighten the image, a negative value will darken it. Increasing the brightness will make all of the colors brighter by an equal amount.

Contrast on the other hand alters the brightness of colors unequally. A positive value for contrast will increase the contrast while a negative value will decrease it.

If you have an image with a very dark background, an adjustment of the contrast, say by -2, may be in order. Once details in the dark areas become discernable, the brightness may be increased.

Making contrast and brightness adjustments can result in a loss of image detail. You should be aware of this when attempting to find the right adjustment to make. You should avoid making an adjustment and then backing up. For example, adjusting the brightness by 100 and then backing up by -50 will result in loss of detail for the brighter colors, resulting in a "posterized" image. If you try an adjustment that is too much, restore the palette using the Undo command and then adjust the brightness or contrast again using a smaller value.

Although a brightness and contrast adjustment cannot be made concurrently, it is permissible to, for example, to make an adjustment to the contrast and then follow with an adjustment to the contrast.

This command is enabled only if your video driver supports a palette. The VGA driver shipped with Windows does not support palettes.

The original palette can be restored with the Undo command. (Unless it is a 24 bit color image).

Note: 24 bit color images do not have a palette so invoking this command while displaying a 24 bit color or gray scale image requires that all of the RGB values in the image must be changed and new bitmaps rebuilt. This can take quite a while if your video driver does not directly support 24 bit color. It is suggested that 24 bit color images be saved as 8 bit (256 color) images first. PSGrfXXX and Windows can process 8 bit color images much faster and if your video display only supports 8 bit color, you will not lose much picture resolution.

## **Palette Gray Palette**

This Command converts a color image to a gray-scale image.

Conversion of 24 bit color images can be lengthy. See PALETTE CHANGE\_PALETTE.

The original palette can be restored with Undo.



## **Palette Adjust Palette**

Some 256 color images may not conform to generally recognized convention whereby the palette is ordered in decreasing importance. When this happens, Windows may 'lose' colors in the image if the color is an 'important' one and the color is one of the last 20 colors in the image's palette. This behaviour usually manifests itself by displaying blotchy areas in a portion of the image, for example, a person's face.

The reason for this is that Windows reserves 20 colors in the system palette for its own use. Therefore, an image that has 256 different colors will be displayed with only 236 of its colors. The remaining 20 colors in the image's palette will be replaced with one of the reserved colors that is closest to the desired one. If this color is not very important, the loss is usually not noticed. But if the color is used extensively, it will show up as blotches.

The Adjust Palette function can be used to adjust the image's palette so that the palette is re-ordered in descending frequency of use. Colors will still be lost but they will be ones that are not used as much so they probably won't be noticed. If the result is acceptable, the image can be saved so that the problem will not occur again.

### **Palette Dither**

This command converts the currently displayed color image to a 16, 20 or 256 color dithered image using the Stucki filter algorithm. The image can also be converted to black and white using the Burkes filter algorithm.

Dithering replaces colors that cannot be displayed by the video display with patterns of dots of colors that it can display. This tricks the eye into seeing the desired color.

The degree of dithering is determined by which palette is used to perform the dither. The following options are available:

1. Black and white. The dithered image will only contain 2 colors. This may be desirable in preparation for printing since many printers, except for color printers, can only print black or white and don't know what to do with shades of gray. (Note that most of the print drivers distributed with Windows 3.1 do a good job of printing color images as halftones and do not require that the image be dithered to black and white first.)
2. Color (use current palette). This option is available when a 24 bit image is displayed. This will most likely be a 256 color palette.
3. 16 Color palette. This palette is good for displaying images on a 16 color video display and if you wish to save the image with 4 bits per pixel color resolution.
4. 20 color stock palette. Use this palette to display images with the Windows standard 20 color palette and with video drivers such as the standard VGA driver.
5. 256 color Palette. This palette has an even distribution of all colors. This palette may be used to provide a common palette for cutting and pasting several images that have different palettes.
6. Clipboard palette. You may use the palette of another image by copying it to the clipboard. This also copies the image's palette to the clipboard. A palette from the clipboard may be used to provide a common palette for cutting and pasting several images that do not have the same palette.

This option should be selected to dither an image if you want to save it. Images dithered with the Auto Dither command will be saved using the original color and pixel data.

## **Display luminance histogram.**

A histogram is a graphical representation of data. In this case, it represents the distribution of different intensities (brightness or luminance) of pixels in a picture. Each intensity level (from 0 to 255) is represented by a vertical bar. The height of the bar represents the frequency of usage. The histogram display can then be used to determine how brightness and contrast adjustments can or should be made. A histogram will show whether a picture is dark, light and whether the image has good or bad dynamic range. A dark image will show the majority of the histogram bars at the left while a bright image will have the bars clustered to the right. A picture with poor dynamic range will have the histogram bars clustered closely together while a picture with good dynamic range will have the histogram bars spread out.

Histograms can only be done for 8 and 24 bit images. It is suggested that you crop any borders from the image before creating a histogram to keep from distorting the histogram calculations.

## **Options Set Play Rate**

This command can be used to vary the delay time between successive frames in a GIF87a animation sequence. The time is entered in 1 thousandths of a second (milliseconds). A larger delay will slow down an animation sequence. The default setting is 100 milliseconds.

Note: This command only affects GIF87a animations. The delay between frames for GIF89a animations is defined within the GIF image itself by the creator of the image.

## **Catalog Alpha Sequence**

This command toggles alpha sequence display mode on and off. When in alpha sequence the thumbnails will be displayed by name in alphabetic sequence. Otherwise, they will be displayed in the sequence that the user has placed them. (See "[Moving Thumbnails under Catalog Thumbnail Options](#)") The current display sequence is indicated by a checkmark. If marked, PSGrfXXX is currently in Alpha sequence mode.

Once a thumbnail has been manually moved, the thumbnail view is taken out of alphabetic sequence mode. To return to alphabetic sequence display mode, click on this command.

**Window Tile**

Select this option to rearrange all of the non-iconic child windows side-by-side.

**Window Cascade**

Select this option to rearrange all of the non-iconic child windows stacked on top of each other.

## **Window Arrange Icons**

Select this option to rearrange all of the iconic child windows along the bottom of the main window.



## **Window Close All**

Select this command to close all of PSGrfXXX's child windows. This command will restore the size of the window to that of the image if the window dimensions have been altered by the Window Tile or Window Cascade commands.

## **Size Window to Image**

The currently active window will be resized to the dimensions of the image displayed in it. This command will be particularly useful after window dimensions have been altered by the Window Tile command

## **Context Sensitive Topics**

This Help system includes topics that you can call directly from the PSGrfXXX sample application. To get context-sensitive help from PSGrfXXX, press Shift+F1 and click on any element of the PSGrfXXX application window. You can also highlight any PSGrfXXX menu command using the keyboard and press F1 to get help on the command.

## **Exit PSGrfXXX**

Several methods may be utilized to exit PSGrfXXX.

- 1.. Select CLOSE from the system menu or double-click on the system menu icon.
2. Select EXIT from the FILE menu or press ALT-F4
3. Select CLOSE from the FILE menu. However, if an image is currently being viewed from the thumbnail layout screen, only that image will be closed.

## **Edit Window**

When displaying an image in the Edit window, the mouse may be used to select an area for subsequently copying or cutting to the clipboard or to select and stretch a portion of the image.

## **Maximize Icon**

Press this icon to make the screen the maximum size. This may be desirable before executing the VIEW-LAYOUT THUMBNAI LS option.

**Minimize Icon**

This icon may be pressed to reduce the screen to an icon. The icon may be selected later to restart PSGrfXXX where you left it.

## Sizing Border



The size of the image displayed may be altered by dragging the mouse on the sizing border to make the window larger or smaller. The image's size can be permanently changed to the new size by use of the EDIT-EXPAND function.

If thumbnails are currently being displayed as a result of the VIEW-LAYOUT THUMBNAILS command, the number of visible thumbnail windows will be increased or decreased in accordance with the new area of the window.



## **System Menu**

The system menu can be used to exit (close) PSGrfXXX or to move the window (move).

**Title Bar**

The title bar will contain (if an image is currently displayed, the filename, size and color resolution of the image.

**Help Help Index**

This option starts up Windows Help and displays the table of contents.

## **Help Help Cursor**

This option turns on the Help Cursor which is a normal arrow cursor with a question mark. By selecting a menu item with this cursor, the appropriate help for that menu item will be displayed. To cancel the operation of the Help Cursor, press the ESC key.

## **Windows Keys**

Choose from the following list to review the keys used in Windows:

[Cursor Movement Keys](#)

[Dialog Box Keys](#)

[Editing Keys](#)

[Help Keys](#)

[Menu Keys](#)

[System Keys](#)

[Text Selection Keys](#)

[Window Keys](#)

[PSGrfXXX Keys](#)

Keys defined by PSGrfXXX.

## Cursor Movement Keys

| <b>Key(s)</b>           | <b>Function</b>                                       |
|-------------------------|---|
| DIRECTION key           | Moves the cursor left, right, up, or down in a field. |
| End or Ctrl+Right Arrow | Moves to the end of a field.                          |
| Home or CTRL+Left Arrow | Moves to the beginning of a field.                    |
| PAGE UP or PAGE DOWN    | Moves up or down in a field, one screen at a time.    |

## Dialog Box Keys


| <b>Key(s)</b>        | <b>Function</b>   |
|----------------------|---|
| TAB                  | Moves from field to field (left to right and top to bottom).  |
| SHIFT+TAB            | Moves from field to field in reverse order.   |
| ALT+letter           | Moves to the option or group whose underlined letter matches the one you type.                      |
| DIRECTION key        | Moves from option to option within a group of options.  |
| ENTER                | Executes a command button.<br>Or, chooses the selected item in a list box and executes the command. |
| ESC                  | Closes a dialog box without completing the command. (Same as Cancel)                                |
| ALT+DOWN ARROW       | Opens a drop-down list box.   |
| ALT+UP or DOWN ARROW | Selects item in a drop-down list box.   |
| SPACEBAR             | Cancels a selection in a list box.<br>Selects or clears a check box.                                |
| CTRL+SLASH           | Selects all the items in a list box.  |
| CTRL+BACKSLASH       | Cancels all selections except the current selection.  |
| SHIFT+ DIRECTION key | Extends selection in a text box.  |
| SHIFT+ HOME          | Extends selection to first character in a text box.   |
| SHIFT+ END           | Extends selection to last character in a text box   |

## Editing Keys

| <b>Key(s)</b> | <b>Function</b>   |
|---------------|---|
| Backspace     | Deletes the character to the left of the cursor.<br>Or, deletes selected text.  |
| Delete        | Deletes the character to the right of the cursor.<br>Or, deletes selected text. |



## Help Keys

| <b>Key(s)</b> | <b>Function</b>  |
|---------------|--|
| F1            | <p>Gets Help and displays the Help Index for the application. If the Help window is already open, pressing F1 displays the "Using Windows Help" topics.</p> <p>In some Windows applications, pressing F1 displays a Help topic on the selected command, dialog box option, or system message.</p>  |
| SHIFT+F1      | <p>Changes the pointer to  so you can get Help on a specific command, screen region, or key. You can then choose a command, click the screen region, or press a key or key combination you want to know more about.</p> <p>(This feature is not available in all Windows applications.)</p> |

## Menu Keys

| <b>Key(s)</b>       | <b>Function</b>   |
|---------------------|---|
| Alt                 | Selects the first menu on the menu bar.   |
| Letter key          | Chooses the menu, or menu item, whose underlined letter matches the one you type. |
| Alt+letter key      | Pulls down the menu whose underlined letter matches the one you type.             |
| LEFT or RIGHT ARROW | Moves among menus.  |
| UP or DOWN ARROW    | Moves among menu items.   |
| Enter               | Chooses the selected menu item.   |

## System Keys

The following keys can be used from any window, regardless of the application you are using.

| <b>Key(s)</b> | <b>Function</b>   |
|---------------|---|
| Ctrl+Esc      | Switches to the Task List.  |
| Alt+Esc       | Switches to the next application window or minimized icon, including full-screen programs.  |
| Alt+TAB       | Switches to the next application window, restoring applications that are running as icons.  |
| Alt+PrtSc     | Copies the entire screen to Clipboard.  |
| Ctrl+F4       | Closes the active window.   |
| F1            | Gets Help and displays the Help Index for the application. (See <a href="#">Help Keys</a> ) |

## Text Selection Keys

| <b>Key(s)</b>                  | <b>Function</b>  |
|--------------------------------|--|
| SHIFT+LEFT or RIGHT ARROW      | Selects text one character at a time to the left or right.   |
| SHIFT+DOWN or UP               | Selects one line of text up or down.   |
| SHIFT+END                      | Selects text to the end of the line.   |
| SHIFT+HOME                     | Selects text to the beginning of the line.   |
| SHIFT+PAGE DOWN                | Selects text down one window.<br>Or, cancels the selection if the next window is already selected.   |
| SHIFT+PAGE UP                  | Selects text up one window.<br>Or, cancels the selection if the previous window is already selected. |
| CTRL+SHIFT+LEFT or RIGHT ARROW | Selects text to the next or previous word.   |
| CTRL+SHIFT+UP or DOWN ARROW    | Selects text to the beginning (UP ARROW) or end (DOWN ARROW) of the paragraph.                       |
| CTRL+SHIFT+END                 | Selects text to the end of the document.   |
| CTRL+SHIFT+HOME                | Selects text to the beginning of the document.   |

## Window Keys

| <b>Key(s)</b> | <b>Function</b>  |
|---------------|--|
| ALT+SPACEBAR  | Opens the Control menu for an application window.  |
| ALT+Hyphen    | Opens the Control menu for a document window.  |
| Alt+F4        | Closes a window.   |
| Alt+Esc       | Switches to the next application window or minimized icon, including full-screen programs.   |
| Alt+TAB       | Switches to the next application window, restoring applications that are running as icons.   |
| Alt+ENTER     | Switches a non-Windows application between running in a window and running full screen.  |
| DIRECTION key | Moves a window when you have chosen Move from the Control menu.<br>Or, changes the size of a window when you have chosen Size from the Control menu. |

## PSGrfXXX Keys

| <b>Key(s)</b>         | <b>Function</b>  |
|-----------------------|--|
| ESCAPE key            | Can be used where ever a Cancel button is displayed.   |
| CONTROL + INS         | Copy to the clipboard. See <u>Edit Copy</u> .  |
| SHIFT + DELETE        | Cut a portion out of an image. See <u>Edit Cut</u> .   |
| SHIFT + INSERT        | Paste from the Clipboard to the current image. See <u>Edit Paste</u> .   |
| SHIFT + F12 keys      | Save an image. See Edit Save.  |
| F12                   | Save an image, and change file name or format. See Edit Save.  |
| CONTROL + F12         | Open image. See <u>File Open</u> .   |
| CONTROL + SHIFT + F12 | Print image. See <u>File Print</u> . <u>ALT + F4</u> <u>Exit</u><br><u>PSGrfXXX. BACKSPACE + ALT</u> <u>Undo last edit operation.</u><br><u>See Edit Undo.</u> |
| CONTROL + "P"         | "Play" a GIF animation sequence.   |

## Clipboard

The Clipboard is used by PSGrfXXX to transfer bitmap information to and from other applications that utilize compatible formats. PSGrfXXX only supports standard Windows Clipboard formats: palette info, device dependent bitmaps and device independent bitmaps or DIB's, metafiles and text. Several additional formats are supported in conjunction with OLE: "Native" and "ObjectLink".

The Cut or Copy commands transfer image data from PSGrfXXX to the Clipboard. If a region is not selected by using the Mouse and the left mouse button, the entire image will be copied to the Clipboard.

The Paste command can be used to transfer a image or portion of an image in the clipboard to your current image. Selecting Paste will change the cursor to a crosshair. Then, while you hold the left mouse button down, a box whose dimensions are the same as the Clipboard data can be moved around until it is positioned properly. Releasing the left mouse button will allow the clipboard data to be displayed.

The Paste Palette command can be used to replace the current palette with one from another image in the clipboard. When the Cut or Copy commands are used, a copy of the palette in use is also copied to the Clipboard. This palette can then be "pasted" just like the image except that not being an entity in the physical sense, it is not necessary to position it. While pasting a palette may be necessary in some instances, the use of this function is limited; the images must have a similar color map structure to avoid unwanted changes to the colors in the image.

## **Device Independent Bitmap (DIB)**

Device Independent Bitmaps are a way of representing an image in a manner that is independent of the hardware upon which they are displayed.

DIB's are used to store images which must be displayed in a number of different environments. They contain all elements which might be needed by different display hardware. Windows BMP files are simply DIB's with a header tacked on.



### **Device Dependent Bitmap (DDB)**

Device dependent Bitmaps are a way of representing an image that is dependent upon the hardware characteristics of the display device. Windows uses DDBs internally. However, a DDB created for one device such as VGA can only be used for VGA. For this reason, the DIB format is used when images must be transferred to another environment.

## **Color Resolution**

Windows can handle four different color resolutions defined as bits per pixel or the number of bits used to describe the color.. 1 bit of color resolution can result in 2 colors, (usually Black or White). 4 bits will allow for 16 colors. 8 bits will allow for 256 colors. These are the most common values found in most images. Note that in order to display 256 colors, you must have a video board and Windows video driver capable of displaying 256 colors; the standard VGA driver can only display 16 colors.

Many images produced by scanners have 24 bit color resolution which is good for several million colors. Unless you have one of the newer graphics cards capable of displaying 24 bit color, 24 bit images will be displayed in 8 bit mode.

## **GIF**

GIF stands for Graphics Interchange Format. It is a bitmapped graphics format introduced by CompuServe. "The Graphics Interchange Format (C) is the Copyright property of CompuServe Incorporated. GIF (sm) is a Service Mark property of CompuServe Incorporated".

There are two specifications for GIF images in use. The older of the two is the "GIF87a" format. Most GIF images adhere to this format. A newer file specification, "GIF89a" provides for additional features such as text and graphic overlays which can be timed or keyed to user input. PSGrfXXX supports these features.

## **Bitmap**

A bitmap in the general sense is an array of pixel (picture elements) . A bitmap to Windows , being a Graphical environment, is the basic element of the windows display just like a character is in an non-graphical environment. The windows display is made up of scores of bitmaps, large and small which make up different elements of the display. Bitmaps are used for such things as buttons, frames, title bars and also text.

The term Bitmap can also be used more specifically to refer to an image stored on disk. Commonly, these files have a .BMP extension. BMP files consist of a Windows bitmap along with some header information such as the size of the image, etc.

**JPEG**

JPEG is a file compression method that differs from other compression methods such as LZW, used in GIF files, or Huffman coded or Run Length Encoded (RLE) in that the compression is "lossy"; the compressed file loses some of the detail of the original. This is possible because the human eye and/or the user's video display is incapable of distinguishing all of the information that can be present in an image. JPEG enables this unnecessary information to be eliminated, resulting in much smaller compressed files than would be produced using other compression methods.

The JFIF file format and the software implementation used in PSGrXXX is the work of the "Independent JPEG Group".

## **OLE (Object Linking and Embedding)**

PSGrfXXX will act as an OLE server in conjunction with other applications (Word for Windows, Write and PBrush are examples in Windows 3.1) known as an OLE Client. Applications that support OLE will generally have an "Insert Object" menu command that will present the user with a list of registered OLE servers. To start PSGrfXXX, select "PSGrfXXX Image".

When initiated by an OLE client, PSGrfXXX will be started, if not already running. A Thumbnail view window for the default catalog will be opened automatically. To select a thumbnail, double click on it with the left mouse button or after viewing it, select Update from the file menu. This will create an embedded object in the Client application's document.

To create a link to a PSGrfXXX-cataloged image, copy the desired image to the clipboard using EDIT COPY. Then, in the client application, select "Paste Special" to link the object to PSGrfXXX.

## **Metafile**

A metafile is a Windows file that contains drawing commands that can be used to draw an image. These commands can be to draw a line, draw a circle, rectangle or other geometric object or a bitmap. Metafiles usually take much less storage space to define an image than using a purely bitmapped image format. This is because it takes much less data to describe a line by its endpoints rather than a collection of pixels.

PSGrfXXX uses metafiles in lieu of creating a bitmap for Micrografx DRW files and WordPerfect WPG files. Other metafile formats are Windows Clipboard CLP files and Windows MetaFile WMF files.

Metafiles consisting of vector drawing commands are easily resized whereas bitmaps are difficult to resize unless it is by some integer factor.

## **TWAIN**

TWAIN is a technology developed by leading manufacturers of scanners and image acquisition devices that allows applications to incorporate support for these devices.



## **User Guide**

A printed user guide may be obtained by loading file USRGUIDE.WRI into Windows WRITE and printing it on your printer.

## **Cannot Open File xxxx...**

If this file name was entered on the command line, you have probably made a mistake in entering the name. If this file was selected from the Open File dialog, this error could be caused by Window running out of file handles. In this case, check your CONFIG.SYS file to insure that the entry FILES= is big enough. You may need to set it to 30 or greater depending upon how many applications you have running on your machine.

If this error occurred as a result of viewing a file, it is possible that the file was moved or deleted and that PSGrfXXX is not aware of the file's new location. This can also happen if a catalog is read-only and cannot be updated when a file is deleted or moved.

## **Unrecognized or invalid File Format**

PSGrfXXX cannot read the image. This could be caused by one of the following conditions:

The file extension is wrong. That is to say, it does not match the file's format. PSGrfXXX assumes that the format, e.g., "GIF" has a file extension of ".GIF".

The file has been corrupted. See [Options Fix TIFF](#) for a option to work around some errors in TIFF files.

The file format is not supported by PSGrfXXX. Read the Tech Info to see if there are any messages detailing the format option giving the problem.

An Encapsulated Postscript (EPS) file does not contain a preview image.

Windows has run out of memory.

Software bug in PSGrfXXX.

**Could not create BitmapFromDib**

This message can occur when the DIB To Screen option is turned off and an error occurs creating the device dependent bitmap copy of the image. This can happen with very large images when you get low on memory. Program execution may continue but you may encounter other errors caused by low memory later, particularly when editing images or using the VIEW-LAYOUT THUMBNAI LS command.

**Must be different path/filename xxxx...**

The path/filename that you specified for the target file is the same as the input file. Either rename the file when you copy it or copy it to another directory or disk.

The operation will be terminated when you press OK.

**Copy Failed/Move Failed**

A copy or a move operation has failed, possibly due to insufficient disk space. Either free up disk space by deleting or moving files or try some other target path for the operation.

The operation will be terminated when you press OK.

**Duplicate File / File already exists at xxxx...**

You are attempting to catalog an image and the catalog already shows a file of the same name located in some other location on a hard drive. Only one hard drive location can be maintained for an image. You may choose to continue by pressing OK or you may quit this operation by pressing Cancel. If you choose to continue, the catalog will be changed to the new location.

**Insert Disk / Insert Volume by in Drive x:**

The Image that you are reading is located on a floppy disk whose volume ID is by. Please insert the requested disk and press OK or press Cancel to abort the operation.



**Incorrect Volume Label**

This error occurs when trying to read a file from a floppy drive. The expected volume label is compared to the expected one. This error results if they differ. You may continue by pressing OK, retry by pressing Retry or cancel or abort the operation by pressing Cancel.

**Rebuild Catalog Index / Are you ready to rebuild the index?**

PSGrfXXX is ready to rebuild the catalog index file. If you have not backed up the catalog, it may be prudent to do this first. To continue, press OK. To abort the rebuild, press Cancel.

**Insufficient space to create xxxx.....**

Prior to performing a Move or Copy operation, PSGrfXXX checks the output volume to see if there is enough space. This message results if there is not.

Your only operation is to press ok which will abort the operation. Then select another volume or location to move/copy to.

**Overwrite existing file?**

If PSGrfXXX finds a file of the same name at the target location for a save or move/copy operation, you will be prompted with this message. If ok to continue, press OK, else press cancel to abort the operation.

**Confirm Delete**

If you do not wish to continue, press Cancel. Otherwise press OK to delete the file.

**xxx... has been modified / do you want to save it?**

You have initiated some action that will erase the current image from the screen. but the image currently displayed has been changed. Do you want to save it before continuing? Press the "Yes" button to save the image, "No" to not save the image or "cancel" to abort the requested operation.

**Empty Catalog / The selected catalog is empty...**

The currently selected catalog is empty. This can happen if you have never cataloged any images; possibly you have just created a new catalog or you are running PSGrfXXX for the first time. Also, if the last Catalog Browse search command failed to find any images, this error could result.

To catalog an image, use File Open to read in an image, then select Catalog Catalog to catalog it; or - select the Catalog Build command to build a catalog.

**New Catalog Created / Do you want to make xxx your current catalog?**

The new catalog has been created. Do you now wish to select this catalog as your active, current catalog? Enter "Yes" if ok, else, enter "No" to continue using the currently selected catalog.



**Warning / xxx already exists, is it OK?**

The filename that you have entered as the catalog file name already exists! Do not allow this name to be used unless you are sure that no other catalog name references it.

**Verify Uncatalog / Do you want to uncatalog xxx...?**

This message is presented when you have selected a catalog entry to be uncataloged. Press "Yes" to continue, otherwise, "No".

**Catalog xxx... not found**

A catalog name entered on the command line when PSGrfXXX was started is invalid. Check the command line to insure that the correct catalog name is given. PSGrfXXX will use the default catalog (CATALOG1=) in your WIN.INI file.

**Error / Unable to create the specified file format**

This error occurs when attempting to create a new bitmap with a different number of bits per pixel in order to save the file in a different format from what it was read as. The most likely cause is not enough memory to create the new bitmap.

**Error / Unable to save the specified file**

The save has failed. Two possible causes are insufficient disk storage space or a lack of memory.

**This is an unregistered copy of PSGrfXXX...**

PSGrfXXX is shareware. If you intend to use PSGrfXXX beyond the 30 day trial period, you are expected to register your copy. Read the file "PIXREGST.ME" that came with your copy of PSGrfXXX for details on how to register your own copy.

**Confirm Delete / Do You wish to delete the thumbnail from view?**

If you answer "OK" the thumbnail will be deleted from the view if the "Display Hidden" option is off. Selecting the Catalog Display Hidden command will cause all "hidden" thumbnails to be displayed. To restore a hidden thumbnail, use the Catalog Browse command or if the "Display Hidden" option is active, there will be an additional option in "Process Thumbnails" to allow marked thumbnails to be "Added" back to the thumbnail display.

Note that although the slide is deleted from the slide view, it is not deleted from the Catalog.

**Error / Insufficient disk space!**

When packing and rebuilding a catalog's index, you need enough space on an available hard drive to create work files containing the new catalog and index. PSGrfXXX will search all available drives for the one with the most space. If no drives have enough space, equal to the current catalog files' size, this error results.

You must free up enough disk space by deleting files before you can retry to rebuild the index.



**Catalog Error/An error has occurred while writing the catalog!**

This error usually is caused by insufficient disk space to write a new catalog entry. The current operation will be terminated when you press OK. To continue after this error, disk space will first have to be freed by deleting unneeded files or moving files to another drive.

**The volume mounted in drive x: does not have a label.**

The floppy volume mounted does not have a volume label. The lack of a volume label may make it difficult to locate this volume in the future. PSGrfXXX will keep the volume label as part of the catalog entry so that you can be prompted for the correct volume if you wish to view the file in the future.

PSGrfXXX will label the disk if you wish. To label the disk, enter the volume label information and press YES . To continue without labeling the disk, press No. To quit, press CANCEL.

**Access Error (or Lock Error) / The file is in use or you do not have sufficient rights: xxxx**

The catalog or catalog index file cannot be accessed because of an access error. This can be caused by the following:

1. The file is in use by another application or user.
2. If the file is on a network, you may not have sufficient rights to access the file. If so, see your network administrator.
3. The file attributes have been set to "read only".
4. The path and/or file name is invalid.
5. There is no room on the disk.

In the first case above, selecting "Retry" may allow you to continue once the other application releases the file. Otherwise, press "cancel" to abort the operation.

**Open Error/ Cannot open catalog file: xxx**

PSGrfXXX cannot open the catalog file or its index. This can be caused by the following:

1. The file is in use by another application or user.
2. If the file is on a network, you may not have sufficient rights to access the file. If so, see your network administrator.
3. The file attributes have been set to "read only".
4. The path and/or file name is invalid.
5. There is no room on the disk.

In the first case above, selecting "Retry" may allow you to continue once the other application releases the file. Otherwise, press "cancel" to abort the operation.

## **Registration Help**

This screen enables you to enter your registration number and name. Once this is done, you will no longer get the "Register Me" screen when PSGrfXXX is started.

You must enter your registration number, then press TAB. The name field should now be highlighted. Enter your name and press TAB. The OK button should now be highlighted. If it is not, or its grayed, you have not properly entered the registration number, your name field is blank or you have not entered your name. Press OK to complete the registration. The HELP - About PSGrfXXX command should now display your registration number and name.

**The image is already dithered. Do you wish to dither it again?**

You have previously dithered this file. Dithering it again may result in loss of image information.

**No slides were marked or available for display**

Slide Show will display only those images that have previously been marked with the mark slides option. Also, images must reside on a hard disk or disk volume that is currently on-line.

### **Moving a thumbnail while displaying...**

Catalogs can be displayed in Alphabetic order or a user defined order. In order to move thumbnails, the catalog can not be displayed in Alpha Sequence. This error occurs when you have tried to move a thumbnail and Alpha Sequence mode is on.

You have 3 choices:

1. Press "Yes" to create a new user sequence; initially, it will be the same as alphabetical order.
2. Press "No". to change turn off uAplph Sequence mode. The thumbnails will be displayed in the most previously defined order.
3. Press "Cancel" to abort the operation.

In any case, the thumbnail that you were moving will not be re-ordered..



### **Invalid Search Date/The format of the date...**

The format of a search date string was invalid. The correct format for a search date in the Catalog Browse dialog is "@Dxyyyy... where "x" is a comparison operand, i.e: "<"- lessthan, "="- equals, "#"- not equal or ">"- greaterthan. "yyy..."is a date expressed in the same format as the national date format defined in your WIN.INI via the International applet of the Control Panel. For example, the default date format for the USA is "mm/dd/yyyy". an example is "@D>01/03/1990"which means select all dates greater than January 3rd, 1990.

Important: make sure that you use the same date separator character such as "/"as is defined in the International section of the Control Panel.

**Catalog xxx is read-only. Changes will not be made.**

The catalog that contains a file to be deleted or moved is marked read-only. Therefore changes reflecting the file's new location will not be made. Continuing without updating the catalog may result in you getting a error at some time in the future when you try to view the image.

**Another catalog has this name**

The catalog title that you have entered for your new catalog is already used by another catalog. All catalog names must be unique, so you must select some other name.

**Drive 'x:'is not a fixed volume...**

The physical drive that you have selected for this catalog to reside on is a removable volume. PSGrfXXX catalogs must reside on a fixed disk or on a drive that is classified as a "Primary Drive".

Normally, PSGrfXXX considers removable media drives such as floppy drives as "Backup"volumes. The storage capacity of floppy drives is not large enough to contain a PSGrfXXX Catalog. However, DOS also considers drives like WORM drives and Bernoulli Boxes as removable drives. Since these drives generally have sufficient capacity to hold a PSGrfXXX catalog, you may tell PSGrfXXX to treat this drive as a "Primary Drive" and allow a catalog to be established on it.

Press OK to make this drive a "Primary Drive" and to proceed with creating the catalog.

### **Catalog may not be accessible**

**The drive that you have selected to place this catalog on is a removable volume that has been declared a "Primary Drive". Because the media is removable, the catalog may not always be accessible. By specifying a Volume label, you can be prompted when it is necessary to insert the media that contains this catalog.**

**This file already exists.**

The filename that you have selected already exists. Although you may define 2 catalog titles to use the same file name, you may not wish to do this. One exception is if you are re-establishing a catalog in PSGrfXXX that is known to exist already, possibly after you have re-installed Windows and are starting with a clean Win.INI file.

Press OK to continue or Cancel, to select another file name.

**Cannot Paint Image...**

PSGrfXXX cannot render the image. A likely cause is that the image is too large. Turning on the "Stretch To Fit" option will cause the image to be shrunk to fit the display.

**Confirm whether you want to delete catalog '...'**

The named catalog will be deleted if you select "Yes". If you do not wish to delete this catalog, select "No".



**File xxx... not found...**

While attempting to delete the file, it was not found. It may have been deleted manually. Select Cancel if you wish to quit or OK to uncatalog the file.

**File xxx... cannot be deleted...**

You cannot delete a file on a read only device like a CD-ROM.

**Another version of...**

PSGrfXXX is registered as an Object and Embedding and Linking (OLE) Server. However, the registration databases shows it at a different location from where this version of the program is running. If you wish to use this version of PSGrfXXX as the OLE server, select "Yes" to update the registration database. Otherwise, the other version, currently identified in the registration database will be called as an OLE server.

### **Cannot Capture Desktop Window...**

You have clicked on the desktop when you said that you wanted to capture a window. You must use the Capture Desktop option to capture the desktop.

## **Illegal Operand**

The @B, @F, @N and @P special search operations can only use the EQUAL '=' operator. The operator may be preceded by a NOT '! operator to reverse the result. For example: "!@F=TIFF" will select all images other than TIFF.

**Parentheses Error**

Parentheses must be matched, there must be a right parenthesis ")" for each left parenthesis "(". Only 9 levels of nested parentheses can be used; e.g: (((((((((())))))))).

## Operator Precedence Error

There are only 3 logical operators that can be used to combine search arguments into a search expression: "|" (OR), "&" (AND) or "!" (NOT). NOT can precede or follow OR or AND. AND and OR cannot be used together. Expressions cannot start with an AND or OR operator. Spaces, commas and the "|" character are all treated as "OR".

### Valid Expressions:

BUILDING | HOUSE  
BUILDING & HOUSE  
!(BUILDING & HOUSE)  
(BUILDING !&HOUSE)  
(BUILDING HOUSE) - "OR" implied by space

### Illegal Expressions:

&Building - starts with AND  
BUILDING |& HOUSE - cannot use AND and OR together.

**File may be smaller if RLE not used**

RLE4 and RLE8 compression of Windows BMP files does not always result in a smaller file if the image does not contain large areas of the same color. Generally speaking, photographs or computer generated art may not work with RLE compression. On the other hand, line art, clip art and so forth will benefit from using RLE compression to create a smaller file size.



**Please enter the password...**

The catalog that is being opened is password protected. In order to open it, you must supply the password that was assigned.

**The network path 'xxx...' cannot be located.**

PSGrfXXX cannot locate the network path name. There are several possibilities that could cause this:

1. The server where the directory resides is not up, you are not logged on or you do not have rights to access it. Contact your network administrator for assistance.
2. If you are running on a peer-to-peer network such as Windows for Workgroups, the PC where the path is located might not be running, is not sharing the path or has file sharing disabled. Contact the operator of the PC for assistance.
3. If the path is on your PC, you may not have file sharing enabled. If you have changed the name of your PC, all previously cataloged paths referring to your prior network name will be inaccessible. Catalog entries, and catalogs referencing the previous network name will have to be deleted and re-established.
4. There may be a problem with your network connection or your PC such as a bad Network Interface card (NIC), a loose or disconnected cable or a configuration error.

### **Syntax error in record #xxx for file yyyy. Import terminated.**

The import function has failed when processing the input file. The record number refers to the relative record within the file that the error occurred. The file name will also let you locate the bad record.

There are several possible causes. See [Import](#) for details on the required file format.. More generally, this error can be caused by the following:

1. The file is not in the correct format. Each record should consist of a file name, title data, description data and keywords data, separated by commas.
2. The title and description fields must be delimited by double quotes if they contain any commas.
3. Fields started with double quotes must end with double quotes.
4. Carriage returns and line feeds that need to be included in the title and description fields must be represented by "\r" and "\n" respectively. Where a backslash is desired, it must be represented by the "\\" sequence. Quotes (single and double) within the title and description fields must be represented by \" and \' respectively. Line continuations must be represented by a single backslash as the last character of a line followed immediately by real carriage return and line feed codes.

Correct the error in the import data file and re-run import.

Note that Import will only accept the file format that is created when the "Import Format " checkbox is checked.

**Error - New name must be different.**

You are supposed to select a new name for this file. You must choose a different name for this file or delete it or cancel the operation..

**New Name in Use**

The new name that you have chosen is already in the catalog. You must choose a different name for this file or delete it or cancel the operation..

### **The Catalog record for index entry xxx... does not match...**

When the catalog was being opened, a verification of the index record to the catalog record failed. This could mean that the catalog is corrupt. Suggested plans of action include.

1. Make a backup of the \*.cat and \*.idx file for this catalog.
2. Run the Rebuild Index menu selection to rebuild the catalog and its index and to recover unused disk space.

This error can occur if the Verify Catalog option is on and catalog entries have recently been deleted; the error will be shown for each deleted entry. In this case, the error can be ignored.

### **AVI services are not available...**

This error occurs when you have the PSGrfXXX software module (PIXAVI.DLL) installed and you try to open a Video for Windows AVI file and Video for Windows software is not present in your Windows installation. This error can also occur when trying to open a QuickTime for Windows MOV file and you do not have the QuickTime software installed.

Suggested course of action:

1. Quit PSGrfXXX.
2. Install Video for Windows or Quicktime for Windows or
3. Remove or rename the PSGrfXXX module PIXAVI.DLL in the PSGrfXXX program directory until you install Video for Windows or QuickTime for Windows.

Note: Video For Windows and QuickTime For Windows must be obtained from Microsoft and Apple Computers, respectively.

## **You may not have enough disk work space...**

During the preparation of a page to be printed, the print driver must create a temporary work file. The size of this work file depends upon how many images are being printed per page. In cases where thumbnail size is small and many thumbnails are to be printed, the size of the temporary work file may be quite large. PSGrfXXX estimates the size of the work file and checks the available space on the drive pointed to by the "TEMP" environment variable and displays this warning if there is not enough space.

To decrease the workfile space requirements, you can take one or more of the following steps:

1. Increase the size of the thumbnails to be printed. This will result in fewer images printed per page. This can be done via the Options button.
2. Increase the size of the print margins.
3. Increase the amount of available disk space on the drive that the "TEMP" environment variable points to. (If there is no "TEMP" variable set in your AUTOEXEC.BAT file, the Windows directory will be used for temporary work space.)
4. If you have more free space on another disk drive, point the "TEMP" environment to a directory on that drive.