

## PolyView Help Contents

PolyView is a multi-threaded 32-bit Microsoft Windows 95 and Windows NT application which provides viewing, file conversion, and image manipulation support for GIF, JPEG, TIFF, photo-cd, and Windows and OS/2 BMP files.

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## Registering PolyView

PolyView is distributed as shareware. To register your copy, send \$20.00 to:

Polybytes  
3427 Bever Avenue S.E.  
Cedar Rapids, Iowa 52403

Registered users will receive product update notifications and problem assistance.

**Please** include your electronic mail address with your registration so that we can provide more timely information about PolyView.

## **Support**

All users are encouraged to communicate praise and problems via e-mail to:

[lcreeve@msn.com](mailto:lcreeve@msn.com)

Every effort will be made by Polybytes to provide satisfaction.

## Execution Options

### Running PolyView

PolyView.exe is the executable file which contains the implementation of the PolyView application. PolyView can be executed by Running it from the Program Manager or File Manager under Windows NT. Windows 95 users can run PolyView from the Windows 95 Explorer or through the many varieties of Windows 95 shortcuts that can be created.

### Drag-and-Drop

Drag-and-drop a file on a running PolyView application, on a PolyView shortcut, or on a minimized PolyView icon, to send the file or files to PolyView. Depending upon the setting of the [Drag and Drop File Actions](#) property of the [File Properties Tab](#) of the [Properties](#) dialog, Polyview will

- Create a new window for each dragged file
- Create a new slide show from the dragged files
- Add the new files to an existing slide show
- Start a slide show if the file is a [Slide Show Script](#) file

See the information about [Full Screen Display Modes](#) for an explanation of slide show mode characteristics.

**Caution:** If PolyView is configured to create a new window for each dragged file and a large number of files are "dropped", then PolyView can fairly quickly use up large amounts of the real and virtual memory resources in your system. If this occurs accidentally, the multithreaded nature of PolyView will allow you to correct your mistake by choosing the File:Exit command to terminate file decompression and release all resources.

**Limitation:** When multiple files are dragged from the Explorer to a PolyView shortcut, the method used by the Explorer is to pass the file names on the internal command line used to execute PolyView. Since there is a limit to the number of characters allowed on an application command line, there is a significant limitation to the number of files that can be dragged at once using this method. If the line length limit is exceeded, one of two things will happen. Under Windows 95 a notification will be issued that there is a problem, and PolyView will not be executed. Under Windows NT the file name at the end of the command line may be truncated, resulting in an error message from PolyView. The work-around to this problem is to execute PolyView first and then drag and drop files on it.

## Windows Registry Usage

PolyView uses the Windows registry for the storage of all information pertaining to individual user settings from the Properties menu, most recently used file list, and the most recently used directory. The polyview.ini file in the windows directory (WINNT35, WINDOWS, etc.) created by PolyView versions prior to 1.70 is no longer needed and may be discarded.

PolyView automatically registers itself with the File Manager or Windows 95 Explorer upon startup, but only for the purpose of storing user preferences under the HKEY\_CURRENT\_USER\Software\Polybytes\PolyView key. The association of file types with PolyView is done only by user direction from the Register File Types dialog which is selected from the Options menu.

## The Toolbar and the Status bar

### The Toolbar

The PolyView toolbar contains buttons for:

Opening image files

Copy and Paste

Invoking full screen display mode

Manipulating the image appearance

Viewing the PolyView About dialog box

### Tool Tips

The function of a toolbar button can be determined by placing the mouse cursor over the button. After a few moments a small caption will be drawn near the cursor indicating the function of the button.

### Toolbar Positioning

The PolyView toolbar is a docking toolbar. This means that it can be grabbed with the left mouse button and dragged to a new position within the PolyView window. If positioned against an edge of the window it will be docked there. The toolbar can also be left floating anywhere in the window, or made invisible through the View:Toolbar command.

### The Status Bar

The Status Bar contains an indicator which displays the action a highlighted menu option will perform, and a "Working" indicator which is displayed when a PolyView background thread is working on reading or saving a file, or adjusting the appearance of an image.

## Full Screen Display Modes

The [File:Slideshow](#), [View:Full Screen View](#), and [View:Auto-browse Images](#) commands display the current image using the entire display screen. Images displayed in full screen mode will be downscaled to fit within the screen boundaries if the raw image size exceeds the screen pixel dimensions.

### Automatic Image Cycling

In slide show or auto-browse modes, images will be changed at the rate indicated by the [Browsed Image Display Time](#) property of the [Browsing Properties Tab](#) of the [Properties](#) dialog.

### Manual Image Cycling

While browsing images in full screen mode, the left and right mouse buttons can be used to manually cycle through the selected images, cancelling any timed image cycling that is in progress. The left mouse button causes the display of the previously displayed image, and the right mouse button causes the display of the next image.

**Note 1:** When a slide show is manually browsed there will be periods of time after a new image is displayed when the next image will not be available for display. During this period while the next image is decompressed the system displays an hourglass cursor. PolyView attempts to load the next image to be displayed by assuming that it is the next file in the slide show list in the direction that was directed by the last mouse click. When a manual slide show is initially started, PolyView displays the first image and begins reading the next image to the right (the second image in the list of slide show files). At this time the last file in the slide show file list is not loaded, so a left mouse button click after the hourglass cursor disappears will start it loading. When the hourglass again disappears a left button click will move to that image.

**Note 2:** Under Windows 95 a right mouse button click near the top of the screen will invoke the standard Windows 95 popup menu, interfering with the full screen mechanisms used by PolyView. There is currently no workaround for this problem except to avoid this area of the screen with the mouse cursor while using the right button to cycle images.

### Cancelling Full Screen Mode

Full screen mode is cancelled by entering a key from the keyboard.

## Panning and Zooming Images

### Panning

Images that do not fit within a displayed window can be panned (positioned) by using the scroll-bars that appear on the window.

### Zooming the Image

PolyView can change the magnification of a displayed image in several ways.

The View:Zoom In command increases the magnification of a displayed image by about 50%. If the image displayed at the resulting magnification level will fit entirely within the dimensions of the PolyView viewing area, then the image window size is increased. Otherwise, the original window size is maintained, with the center of the newly magnified image the same as that at the previous magnification. In the latter case, scrollbars are added to the image window.

The View:Zoom Out command changes the magnification and image display position to the conditions which existed prior to the previous View:Zoom In command.

A more interactive zoom is available by using the left mouse button to draw a rectangle around the area to be displayed in the magnified image. When the button is released the image will be rescaled. The View:Zoom Out command can be used to go back to the previous magnification.



## Image Appearance Manipulation

The appearance of an image can be manipulated using the brightness/contrast/color/rotation selections of the Options menu, or via the appearance manipulation buttons on the toolbar.

The following selections are available. The actions of all but the [Gray Scale](#) and Rotation selections are modified by the appropriate adjustment percentage properties of the General Properties Tab of the Properties dialog.

### **Brighter+**

### **Brighter-**

Adjusts the brightness level of the current image.

### **Contrast+**

### **Contrast-**

Adjusts the contrast of the current image.

### **Color+**

### **Color-**

Adjusts the relative color saturation level of the current image. (Disabled for gray scale images.)

### **Red+**

### **Green+**

Adjusts the red/green tint of the current image. (Disabled for gray scale images.)

### **Gray Scale**

Converts the current image to gray scale. (Disabled for images which are already gray scale.)

### **Rotate Clockwise**

Rotates the current image clockwise by 90 degrees.

### **Rotate Counter Clockwise**

Rotates the displayed image counter clockwise by 90 degrees.

## Properties

The PolyView Properties dialog box, accessed through the Properties selection of the Options menu, is used to control the user preferences for the operations performed by PolyView during its operations. The various properties are organized under the tabs of the dialog box. These tabs include:

### Properties Dialog Tabs:

File Properties Tab

General Properties Tab

Browsing Properties Tab

JPEG Properties Tab

## File Properties Tab

The file properties are available from the [Files](#) tab of the [Properties](#) dialog. These include:

### Drag and Drop File Actions

Options to control whether files dragged from the File Manager and dropped on PolyView create new image windows, or are used to create or augment a slide show. Two options are presented:

[Create a window for each file](#)

[Create a slide show from files](#)

[Add to existing list](#)

### Image File Open Actions

Options to control whether a file opened by PolyView creates a new image window or replaces the current image window. Two options are presented:

[Create New Window](#)

[Replace Current Window](#)

### Prompt for file save on exit

If this option is checked then PolyView will remember if the appearance of the image is altered and will allow a last chance to save the image when the image is closed.

If this option is chosen, then each file dragged and dropped on PolyView will create a separate image window. **Caution:** if a large number of files are dropped, then correspondingly large quantities of memory resources will be consumed.

If this option is chosen, then a group of files dragged and dropped on PolyView will be used as the file list for a slide show and the slide show will be automatically entered.

If this option is chosen, then each file opened by PolyView will be displayed in a separate, newly created window.

If this option is chosen, then each file opened by PolyView will be displayed in the current window, replacing any existing image. If no images are currently being displayed then PolyView will create a new window for the image. **Note:** If multiple files are dropped on PolyView when this option has been selected, then only the first file will be opened.

If [Create a slide show from files](#) has been selected, then this option controls whether the dropped group of files replaces an existing slide show list or is added to it. **Note:** this option will be disabled unless [Create a slide show from files](#) has been selected.



## General Properties Tab

The general properties are available from the [General](#) tab of the [Properties](#) dialog. These include:

### Image Adjustment Percentages

These controls set the percentage change that will occur when the [Image Manipulation](#) commands are used to adjust brightness, contrast, color saturation, and red/green tint. Setting the [Brightness Adjustment Percentage](#) value to 10, for example, will cause the [Options:Brighter+](#) command to increase the overall brightness of the image by 10 percent. The allowable range for each item is 1 to 20.

### Default One-For-One Mapping

This option controls the way PolyView deals with images that are larger than the maximum size image that can be displayed in the current viewing area. If [Default One-For-One Mapping](#) is selected, then PolyView will prepare the largest size window possible and equip it with scroll-bars to enable panning around in the image. If [Default One-For-One Mapping](#) is not selected, then PolyView will scale the image to fit within the viewing space. In this case the [View:One-for-One Mapping](#) command can be used to achieve the same view of the image.

### Disable All Editing (Viewing only)

Turns off the retention of the device independent bitmap associated with an image. With certain display modes this will reduce memory consumption and increase file loading speed. It will also, however, disable most editing functions including color manipulation, rotation, copy, save, export, etc.

### Photo-CD Upsizing

The [Photo-CD Upsizing](#) options control the way PolyView selects the image size to use from a Photo-CD image file.

## Photo-CD Upsizing

The algorithm that PolyView uses to select the display image size of a photo-cd file depends on the [Enable Photo-CD Upsizing](#) option of the [General Properties Tab](#) of the [Properties](#) dialog.

If upsizing is not enabled, then PolyView chooses an image size which fits within the dimensions of the full screen viewing area, yielding the most accurate display of the image. For example, if a horizontal image is to be displayed on an 800x600 resolution display, then the 768x512 image size will be chosen. On the same display, however, a vertical image will be displayed in a 256x384 format, since the next available size of 512x768 will overfill the screen in the vertical direction.

If upsizing is enabled, then PolyView chooses an image which fills the screen to the [Screen Fill Percentage](#) in at least one direction. For example, consider the case where a 75% [Screen Fill Percentage](#) has been chosen. On an 800x600 display, a horizontal image will be displayed in the 768x512 image size because this fills the screen to 96% in the horizontal direction, and 85% in the vertical direction. For a vertical image a 512x768 image will be chosen, because the next smaller size of 256x384 will fill the screen to only 32% in the horizontal direction, and 64% in the vertical direction. In this case, the 512x768 image will be "shrunk" to exactly fill the available display area.

**Caution:** upsizing can cause PolyView to use a significantly larger amount of memory during photo-cd image decompression and display. Specifying a 90% [Screen Fill Percentage](#) on an 800x600 display will result in PolyView choosing a 1536x1024 image. During decompression this size image requires a 4.6 Mbyte memory structure to be allocated for the storage of a device independent bitmap. On a 24 bit display the resulting device dependent bitmap is also 4.6 Mbytes in size, so the peak memory requirement to display this image is more than 9.2 Mbytes. This may lead to excessive disk activity and performance degradation on memory challenged systems.

## **Browsing Properties Tab**

The browsing properties are available from the Browsing tab of the Properties dialog. These properties include:

### **Browsed Image Display Time**

The number of seconds an image is to be displayed in auto-browse or slide show modes. This is the minimum time for the display of the image in slide show mode. The next image load is started when an image is displayed, so long image load times may increase the image display time.

### **Timed Browsing Mode**

These properties control the method used to terminate auto-browse or slide show mode. Three alternatives are provided:

Cycle Images Once

Cycle Images Continuously

Cycle Images Manually

### **Display Filenames with Full Screen Image**

This property controls whether or not the name of the displayed image is displayed along with the image when in full screen mode.

The images are cycled once from the beginning to the end of the list. When the end of the image list is reached the full screen mode will be terminated.

The images are cycled continuously. When the end of the image list is reached the list is restarted from the beginning. User intervention via the mouse or the keyboard is required to interrupt the display cycling.

Image cycling is controlled by the user via the mouse or the keyboard. The right mouse button advances to the next image in the list. The left mouse button advances to the previous image in the list.

## JPEG Properties Tab

The JPEG properties are available from the [JPEG](#) tab of the [Properties](#) dialog.

### DCT Arithmetic Method

The PolyView JPEG algorithms provide several methods for performing the Discrete Cosine Transform (DCT) used during JPEG file reading and writing. The methods available are:

[Accurate Integers](#)

[Fast Integers](#)

[More Accurate Floating Point](#)

### Chroma Component Upsampling Method

The Chroma component upsampling method controls the speed and accuracy of certain color manipulations performed during JPEG file reading. The methods available are:

[Slow, careful, and accurate](#)

[Fast, but less accurate](#)

### Output Quality Factor

Controls the relative quality of the image resulting from saving to a JPEG format file, and is proportional to the resulting size of the file. (Higher quality images result in larger files.) The PolyView default value of 50 is a reasonable compromise between output quality and file size.

Fast but inaccurate integers - this is the fastest method on most machines, but may suffer from degraded image quality. For many images there will be insignificant visible degradation.



Slow but accurate integers - this method is slower than the fast integer method, but achieves high quality results.

Fast or slow but accurate floating point - this highly accurate method may be the fastest on some machines, but on machines without floating point capability will be VERY slow.

Chroma (color) upsampling is performed very carefully and accurately. This is the slowest method.

Chroma (color) upsampling is performed with a sloppier method that leads to some image degradation. This method is much faster, however, and the degradation is frequently not detectable.

## Credits and Acknowledgments

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Tagged Image File Format support is based on the work of Sam Leffler. This work was made available according to the following statement:

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The Photo-CD decompression algorithm in PolyView was derived from the algorithm in the XLI application, an X Windows based image viewing utility. This work of many authors was made available according to the following statement:

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## **The PolyView Warranty**

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## Supported Formats

PolyView supports the following standard graphics formats for image viewing:

Bitmap (BMP)

Graphics Interchange Format (GIF)

Joint Photographics Experts Group (JPEG)

Photo-CD

Tagged Interchange File Format (TIFF)



TIFF files come in many shapes, sizes, and colors. Because of this it is virtually impossible to guarantee that all possible combinations of TIFF storage techniques will be interpreted and rendered correctly. PolyView **does**, however, support 1-4-8 bit grayscale images, 8 bit color mapped images, and 24 bit RGB images. These formats are supported with a variety of compression methods, planar configurations, and in both tiled and non-tiled forms.

Photo-CD is the Kodak Photo CD format. PolyView can extract any of the image sizes stored within these files.

JPEG format files containing 8 and 24 bit images are read and displayed by PolyView.

GIF file images are read and displayed by PolyView. PolyView ignores non-image related information found in GIF 89a files.

BMP format files in both Windows and OS/2 formats are read and displayed by PolyView.

## File Menu

### Open...

Presents a standard file-open dialog box from which a graphics image file or a slide show script can be selected for display. Newly opened files will be created in a new window or in an existing window, depending on the settings of the Image File Open Actions property of the File Properties Tab of the Properties dialog.

### Save

Saves the current file in the original format, subject to the default settings for that format as specified by the Properties dialog. This menu option is enabled only for images that are in a format supported by PolyView for file saving.

### Close

Closes the currently displayed image.

### Delete

Deletes the file associated with the currently displayed image and closes the image window. A confirming dialog box will be presented to reduce the chances of accidentally deleting an image.

### Export Image...

Exports the current file in a format supported by PolyView for file saving.

### Slide Show...

Presents a modified file-open dialog box from which a list of images can be created for use in a full screen slide show presentation. A pre-display rotation can be selected for individual image files if the default orientation of the image file is not correct.

The behavior in the full screen display mode is controlled by the settings of the Browsing Properties Tab of the Properties dialog.

### Save Slide Show...

Saves the current slide show in a slide show script file.

### Image Properties...

Displays a dialog box which provides information about the specific properties of the currently displayed image.

### Recently Opened File List

A list of the four most recently opened image files. Selecting one of these file names is equivalent to selecting it again through the Open... command.

**Exit**

Closes all image windows and exits PolyView.

## View Menu

### Zoom In and Zoom Out

See [Panning and Zooming](#).

### Auto-browse Images

Presents a full screen slide show of the currently open images. The behavior in the [full screen display mode](#) is controlled by the settings of the [Browsing Properties Tab](#) of the [Properties](#) dialog.

### Full Screen View

Displays the current image in [full screen mode](#).

### One-for-One Mapping

Changes the display of the current image to be actual size. The default PolyView behavior when opening large images is controlled by the [Default One-For-One Mapping](#) property of the [General Properties Tab](#) of the [Properties](#) dialog.

### Resize to fit main window

Scales or rescales the current image to better fit the display area in the PolyView main window. A large image will be shrunk to fit the display, but small images will not be expanded.

### Toolbar

Enables or disables the display of the [toolbar](#).

### Status Bar

Enables or disables the display of the status bar.



## **Options Menu**

### **Image Appearance Adjustments**

See [Image Appearance Manipulation](#).

### **Properties...**

See [Properties](#).

### **Register File Types...**

See [Register File Types](#).

## **Window Menu**

### **New Window**

Creates a new view of the current image. This might be useful for viewing separate portions of the same image at the same time.

### **Arrange Icons**

Arranges the current image icons in an orderly fashion within the PolyView main window.

### **Current Image List**

The list of image files currently open. Select an image from this list to make it the current image.

## **Help Menu**

### **Help Contents**

Displays the contents page of the PolyView help system.

### **Search For Help On**

Search the PolyView help system for information on a specific subject.

### **About PolyView**

Displays a dialog box with information about the current version of PolyView.

**Note:** Context sensitive help is also available by pressing the F1 key. Context sensitive help directs the user to the help topic appropriate to the action currently being performed.

## Past and Future

### The Past: PolyView Version History

- 1.00 Initial release.
- 1.10 Added default saving for application and image configuration defaults.  
Added View:Resize to fit command.
- 1.20 Added JPEG DCT method choice.  
Changed bitmap algorithms for better Win95 compatibility.
- 1.30 Added support for 8 bit color modes.
- 1.40 Added "on-the-fly" image painting during file reading.  
Remember last screen position and state.  
Remember last directory used to open a file.
- 1.50 Added full screen viewing mode.
- 1.60 Added slide show viewing mode.  
Added properties dialog and additional JPEG decompression options.
- 1.70 Added photo-cd file support.  
Added system registry use for file association.
- 1.80 Added photo-cd upsizing option.
- 1.90 Added TIFF file support.  
Added 24 bit BMP support in 256 color modes.  
Added File:Delete option.
- 1.91 Added context sensitive help.
- 1.92 Added Register File Types dialog box.
- 2.00 Removed image configuration file usage.  
Changed image appearance algorithms to work on all systems.  
Added gray scale operation.  
Added image save operations.  
Improved capabilities for reading damaged files.
- 2.10 Added scripted slide shows.  
Added copy and paste operations.  
Added support for reading 1, 4, 16, and 32 bit BMP files, and  
4 and 8 bit RLE BMP files.  
Added background operation of color manipulation, rotation, and image  
exporting operations.
- 2.11 Fixed a bug which caused JPEG file handle ownership to be retained.  
Added File:Image Properties command.  
Added image context menu from right mouse button.
- 2.12 Added the optional display of the image file name during full screen mode.
- 2.13 Corrected processing of multiple files dragged to a PolyView shortcut.  
Corrected processing of dragged files containing slideshow scripts.

### The Future

The following capabilities for PolyView are currently in the planning or implementation stages:

- Support for displaying the comments found in GIF and JPG files.
- File saving to additional BMP formats.

File saving to TIFF formatted files.

Support for the new Portable Network Graphics (PNG) format.

## Register File Types

The Register File Types dialog is accessed through the [Register File Types](#) selection of the [Options](#) menu. This dialog provides direct control over the file extensions which the Windows NT File Manager or the Windows 95 Explorer associate with PolyView. Once this association is made, [running](#) the image file or [slide show script](#) file will result in the launching of PolyView and the display of the image or slide show.

The dialog box offers file types with their most common extensions:

Bitmap image files (.bmp)

GIF image files (.gif)

JPEG image files (.jpg)

Photo-CD image files (.pcd)

TIFF image files (.tif)

Slide show script files (.pvs)

When the dialog [OK](#) button is pressed, the Registry file associations for the checked extensions will be updated, replacing any previous association for those extensions. Press the [Cancel](#) button to close the dialog without making any changes.

## Saving and Exporting Files

PolyView saves files in 8 bit bitmap, 24 bit bitmap, and JPEG formats. The save format is determined according to the user operations performed, and the original format of the image to be saved.

If the [Save](#) selection from the [File Menu](#) is made, then the image is saved in the same format as the original format of the current image, and replaces the original input file. The [Save](#) selection is only enabled if the original image format is one of the formats supported by PolyView for file saving.

If the [Export Image...](#) selection from the [File Menu](#) is made, the [Export Image](#) dialog box is invoked. The save format is specified by the user by selecting the format from the [Files of Type:](#) drop down list in the [Export Image](#) dialog box.

If the [Yes](#) response is chosen from the [Save changes to <filename>](#) dialog invoked when closing a modified image, and the original format is one of the formats supported by PolyView for file saving, then the modified image will replace the original image in the input file. If the format of the current image is not supported for saving, then the [Yes](#) response will invoke the [Export Image](#) dialog box where the new name and format for the file can be specified.

**See also:**

[JPEG Properties](#)

## **Edit Menu**

### **Copy Full Image**

Copies the current image to the Windows clipboard. The entire image is copied, not just the currently displayed portion.

### **Copy Visible Image**

Copies the currently displayed portion of the current image to the Windows clipboard.

### **Paste**

Creates a new image window from any bitmap currently stored in the Windows clipboard.

### **Flush Clipboard**

Removes all information from the Windows clipboard.



## Slide Show Scripts

### Script File Operations

Slide show script files contain a list of image file names to be included in a slide show. The ordering of the file names in the script determines the order the images will be displayed during the slide show.

Slide show script files should be stored in a text file with the file type PVS. When a file with the type PVS is opened by PolyView, the contents are read and the slide show is started. If the PVS file type has been registered for PolyView through the [Register File Types](#) dialog, then Windows 95 Shortcuts or Program Manager Program Items can be created for the script file.

### Rotation Options

In some cases, particularly with photo-cd images, the default orientation of an image is incorrect. Script files can therefore contain rotation options for each individual file. A rotation option is a character string of the form "/rn" attached to the end of a line in the script file for a specific image, where "n" is in the range from 1 to 3 and indicates the number of 90 degree clockwise rotations to be applied to the image prior to display. For example, if the following lines are stored in a file named "slideshow.pvs"

```
c:\images\image1.jpg  
d:\images\image2.pcd /r1  
c:\images\image3.bmp
```

then the images "image1.jpg", "image2.pcd", and "image3.bmp" will be displayed in the order shown, with "image2.pcd" rotated clockwise 90 degrees from its "normal" orientation.

### Saving Script Files

Each time a slide show is displayed during PolyView operation, the list of files and their rotation options are maintained in memory. When the [Slide Show](#) option of the [File](#) menu is invoked, the current slide show list is displayed in the dialog box. At this point the files in the show can be removed or have their rotation options changed, or new files can be added. After the slide show is started and then stopped, the [Save Slide Show](#) option of the [File](#) menu can be invoked to create or change a script file. By using this mechanism, script file creation and editing can be accomplished entirely within PolyView, minimizing the chances for creating script files with incorrect formats.

