



Apple IIGS

#97: Picture Comments and Printing

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This Technical Note discusses QuickDraw Auxiliary picture comments and how they can be used to help control the printing process.

What's a Picture Comment?

Picture comments are a way in which extra information beyond normal QuickDraw II calls can be embedded in a QuickDraw II picture. Comments can contain virtually anything; they consist of a length, a handle containing the comment and a “kind” that identifies the general type of information in the comment. Picture comment kinds less than or equal to 256 (\$100) are reserved for Apple Computer, Inc.

For comments to have any significance, there must be a way that a routine can take special action on them. One of the standard bottleneck procedures is called every time a picture comment is encountered, and it is passed the picture comment's kind, size, and handle on QuickDraw II's direct page. You can insert the address of a custom picture comment handler into the `grafProcs` field of a `grafPort` as described in Apple IIGS Technical Note #34, Low-Level QuickDraw II Routines. If no custom comment handler is present in the `grafPort`, the system calls its own `StdComment` routine, which ignores all comments.

The current picture comment handling routine (either a custom one or the system's default one) is called whenever a picture comment is generated (with the QuickDraw Auxiliary call `PicComment`) or played back from a picture (from within `DrawPicture`). Since the picture comment handling procedure is called when the comment is created, a picture does not have to be open for this facility to work.

Picture comments are ideal ways for applications to pass information to printer drivers as they are generated through toolbox calls and are easily accessible to any desktop program. If the printer driver is printing in immediate mode, it can intercept and act on the picture comment when it is generated. If the printer driver is printing in deferred mode and recording page images with QuickDraw II pictures, it can intercept and act on the picture comment when the picture is played back.

Apple's ImageWriter, ImageWriter LQ and LaserWriter drivers (from System Software 5.0.3) all support various kinds of picture comments for controlling printed output. Applications are

encouraged to use these picture comments for finer control over printing. Authors of printer drivers are encouraged to act on these picture comments where appropriate, so applications which use them achieve similar results across printing platforms.

The LaserWriter Driver's Picture Comments

Version 2.2 and later of the LaserWriter driver support the following five PostScript® picture comments:

Name	Kind	Size	Handle
PostScriptBegin	190	0	NIL
PostScriptEnd	191	0	NIL
PostScriptHandle	192	–	PostScript data
PostScriptFile	193	–	PostScript path name
TextIsPostScript	194	0	NIL

Table 1—PostScript Picture Comments

The print loop must be completed normally with or without any PostScript picture comments that are included. PostScript transmission must begin with the `PostScriptBegin` picture comment and end with the `PostScriptEnd` picture comment. Never nest `PostScriptBegin` and `PostScriptEnd` picture comments.

The `PostScriptHandle` picture comment takes a handle containing PostScript commands (in the form of ASCII data) and sends it to the LaserWriter. The `size` field must contain the size of the handle.

The `PostScriptFile` picture comment takes a handle containing the pathname of a disk file containing PostScript commands. The `size` field must contain the size of the pathname.

The `TextIsPostScript` picture comment takes text drawn through the QuickDraw II `StdText` bottleneck and sends it to the LaserWriter as PostScript. This picture comment has the effect, from the application's point of view, of interpreting all strings passed to `DrawString` and similar calls as PostScript. This picture comment is specific to LaserWriters (`idev = $0003`). Other drivers do not implement this picture comment; therefore, text drawn through QuickDraw II is simply printed—it is neither interpreted as PostScript nor ignored.

The driver does not check for PostScript errors, so the data sent to the LaserWriter must be correct. Always terminate PostScript text with a carriage return character. The transformation the driver uses flips text and prints it upside down on the page. Applications should set their own transformation matrices to serve their needs. Never use the LaserWriter's `userdict`—define a local dictionary for your application's use. Never use `exitserver`, `initgraphics`, `grestoreall`, `erasepage`, or `showpage` PostScript commands, as these commands can alter the driver's environment.

See Chapter 3 of the *LaserWriter Reference Manual* for some examples of how to use picture comments.

The ImageWriter Driver's Picture Comments

ImageWriter driver version 4.0 and later uses three picture comments to control alternate color selection:

Name	Kind	Size	Handle
Reserved	250	–	Reserved
FillColorTable	251	42	See below
ChangeSCBs	252	14	See below

The structure passed in the handle to `FillColorTable` looks like the following:

version	word	must be zero
signature	word	must be \$A55A
tableno	word	the color table to be modified (0-15)
table	32 bytes	The new color values for the color table
reserved	long	must be zero

The structure passed in the handle to `ChangeSCBs` looks like the following:

version	word	must be zero
signature	word	must be \$A55A
Y1	word	line number of first SCB to change (from zero to rPage.Y2)
Y2	word	line number of last SCB to change (from zero to rPage.Y2)
SCBvalue	word	the new scan line control byte
reserved	long	must be zero

`PrOpenPage` reinitializes the printing `grafPort`, so these picture comments should be used immediately after `PrOpenPage` to set custom colors. Having lines with both 320- and 640-mode is not recommended and will probably not be supported in the future.

The ImageWriter driver uses picture comment 250 to internally mark the end of a page. Applications must not use this picture comment; use `PrClosePage` to end a page's definition.

Further Reference

- *Apple IIGS Toolbox Reference*, Volumes 1–3
- Apple IIGS Technical Note #34, Low-Level QuickDraw II Routines
- Apple IIGS Technical Note #35, Printer Driver Specifications
- Apple IIGS Technical Note #93, Compatible Printing
- *develop*, October 1990, Issue 4, “Driving to Print”

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