

Addendum to Adobe Photoshop

Version 1.0.7

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Adobe Photoshop Program Enhancements, Version 1.0.7

This addendum documents changes made in version 1.0.7 of the Adobe Photoshop™ program. Version 1.0.7 includes new features, such as improvements to the color separation and printing capabilities, a new monitor calibration facility, general improvements in software functionality, and several software bug fixes.

If you have just purchased the Adobe Photoshop program, you should work through the *Adobe Photoshop Tutorial* and familiarize yourself with the *Adobe Photoshop User Guide* before reading this addendum.

General improvements

The improvements to the Adobe Photoshop program in version 1.0.7 make the program more powerful and easier to use. They include the following changes:

- The program can now read PixelPaint® files created by PixelPaint 2.0.
- In dialog boxes with slider controls, such as the Brightness/Contrast dialog box, you can now click on the slider where you want the triangle to be positioned. If more than one triangle is on the slider, the triangle closest to where you click will move to the new position.
- The Unsharp Mask filter has a new Threshold parameter for suppressing the sharpening effect in mostly flat areas of the image, thereby minimizing the amplification of film grain and scanner noise. You can assign a value between 0 and 255 to the Threshold parameter. A value of 0 produces no sharpening suppression.
- The lasso and painting tools will draw the correct path even when the program cannot keep up with your mouse strokes due to processing speed or other delays.
- In the Adjust Levels dialog box, holding down the Option key while dragging the white or black input triangles causes the program to switch to Threshold mode. This mode allows you to see exactly what colors are being clipped to white or black.
- In the Preferences dialog box, the Video LUT Animation check box (formerly Use DirectSetEntries) disables screen animation in 4- and 8-bit modes (used in many of the adjustment dialog boxes) in addition to 16- and 32-bit modes.
- The Mode menu now has a Video Alpha submenu for selecting which of the program's alpha channels is displayed in a 32-bit video card's alpha channel. You can use this submenu to control image transparency when mixing an Adobe Photoshop image with a video source. To use this feature, your alpha channel must be defined, and the composite color RGB image must be displayed. You can then use the Video Alpha submenu to copy one of the defined alpha channels into the extra eight bits on a 32-bit video card. This feature applies only to video cards that use the alpha channel, such as the Truevision NuVista cards.

- The program now supports the Wacom tablet, a pressure sensitive digitizing tablet with a cordless pen. When the Control Panel software for the tablet is installed, the Adobe Photoshop program's pencil, paintbrush and airbrush tools react to the amount of pressure applied when you use the pen: the pencil varies the brush radius; the paintbrush varies both the opacity and the brush radius; and the airbrush varies the pressure parameter.

To turn off pressure sensitivity, double-click on the drawing tool to bring up the Options dialog box, and deselect the Wacom PS check box. This check box appears in the Options dialog box only if the Wacom Control Panel software is installed.

Bug fixes

The following bugs in version 1.0 of the Adobe Photoshop program have been fixed in version 1.0.7:

- Version 1.0 sometimes incorrectly formatted LZW compressed TIFF and GIF files. Version 1.0.7 correctly formats LZW compressed files, and can read all TIFF and GIF files written by version 1.0 with no loss of data.
- Version 1.0 would sometimes not save to multiple disks if you were replacing an existing file.
- In version 1.0, if you saved a gray-scale EPS image using transfer functions in override mode, the image did not separate correctly when opened in Quark XPress®. (See the section "Overriding the printer's default functions" later in this addendum for a description of override mode.)
- Version 1.0 sometimes displayed random colors when Kolor CDEV software (available through Shareware) was used to adjust the default window's background color.

New printing features

The following features have been added to the printing capabilities of the Adobe Photoshop program. You can now:

- Define custom halftone dot shapes
- Turn off downloading of halftone screen specifications
- Override the printer's default transfer functions

Defining custom halftone dot shapes

The Adobe Photoshop program now allows you to define custom PostScript spot functions as halftone dot shapes. This feature is useful for printing with non-standard halftone algorithms, such as the Flamenco technology by The Color Group.

To define custom spot functions:

1. Choose the Page Setup command from the File menu.
2. In the Page Setup dialog box, hold down the Option key and click Screens.

When the Halftone Screens dialog box appears, it will include an additional button: Custom Shapes.

3. Click Custom Shapes.

A PostScript Spot Function dialog box appears for the color Cyan. You can type PostScript commands in this dialog box to create the halftone dot shapes during the printing process. When you click OK, another dialog box appears for the color Magenta. Repeat the procedure for Magenta, Yellow, and Black, in that order.

For information about the PostScript commands you would use here, see the *PostScript Language Reference Manual*, published by Addison-Wesley.

Turning off downloading of halftone screen specifications

The Halftone Screen dialog box has a new check box: Use Printer's Default Screens. Clicking this check box causes the Adobe Photoshop program to ignore downloading of altered or custom halftone screen specifications when printing. Using the printer's default screens decreases printing time.

Overriding the printer's default functions

The Transfer Function dialog box has a new check box: Override Printer's Default Functions. If you check this box, the specified transfer functions replace the printer's default transfer functions. (Replacement was the default in version 1.0.) If you do not check this box, the transfer functions you set are appended to the beginning of the printer's default functions (the new default). This change makes the Adobe Photoshop program compatible with other printer calibration utilities.

Color separations

The color separation process has been enhanced in version 1.0.7, resulting in improved highlight and shadow detail, and in more accurate conversion of color gradient fills in printed separations.

In addition to the enhancements described in the following sections, much of the color separation improvement is due to a higher resolution interpolation table used in the RGB-to-CMYK conversion process. Because the new table takes more time to calculate than the previous one, the program now generates the table once, and then stores it on your disk. Subsequent conversions take much less time. The table is recalculated whenever a color patch value or separation setup parameter changes.

Reducing undercolor removal

With version 1.0 of the Adobe Photoshop program, a substantial amount of color was removed from shadow areas, with the CMY color values being replaced with black. To allow more control over the generation of blacks in an image, the Separation Setup dialog box has a new field: Undercolor Addition.

The image shows the 'Separation Setup...' dialog box. It contains color bars for Cyan (C), Magenta (M), Yellow (Y), and their combinations (MY, CM, CY, and CMY). Each bar has a percentage value below it. To the right of the color bars are controls for 'Monitor Gamma' (set to 1.40), 'Black Generation' (set to Medium), 'Total Ink Limit' (set to 300%), 'Undercolor Addition' (set to 0%), and a 'Gamut Mapping' checkbox which is checked. Buttons for 'Load...', 'Save...', 'OK', and 'Cancel' are at the top right.

Color	Value (%)
C:	80
M:	80
Y:	100
MY:	100
CM:	100
CY:	80
CMY:	50

Monitor Gamma: 1.40
Black Generation: Medium
Total Ink Limit: 300 %
Undercolor Addition: 0 %
☒ Gamut Mapping

You can use the Undercolor Addition field to reduce the amount of undercolor removal in the very dark areas in order to create more saturated blacks. To do this, enter a value between 0 and 100%. The higher the percentage, the more saturated the blacks in the image.

Correcting for the monitor gamma

With the previous version of the Adobe Photoshop program, correction for the monitor gamma was made during the RGB-to-CMYK conversion. In version 1.0.7, correction is made when the printing transfer function is applied. The result is increased dynamic range with less contouring in shadow areas.

Because the gamma correction is performed when the transfer function is applied, the Transfer Function dialog box contains a new field: Image Gamma.

Transfer Functions...

	C:	M:	Y:	K:	%
Highlights:	0	0	0	0	%
1/4 Tones:	15	15	15	15	%
Midtones:	32	32	32	32	%
3/4 Tones:	55	55	55	55	%
Shadows:	100	100	100	100	%

Image Gamma: 1.40

☐ Override printer's default functions

OK
Cancel
Load...
Save...

Set the Image Gamma field to the same target gamma value that you defined using the Gamma Control Panel device. (Calibrating color and grayscale monitors using the Gamma Control Panel device is described in the next section, “Color and grayscale monitor calibration.”)

Color and grayscale monitor calibration

The sections titled “Calibrating the gamma of your monitor” in Chapters 19 and 20 of the *Adobe Photoshop User Guide* describe procedures for calibrating your monitor. Version 1.0.7 of the Adobe Photoshop program replaces these procedures with a Gamma Control Panel device (CDEV) for calibrating the following monitor items:

- Gamma
- Color balance
- Black and white points

You can also use the Control Panel’s gamma settings to preview duotones by adjusting the black and white points to the desired colors, and to match a number of monitors in your work group so that several people can accurately work on the same image on different systems.

The procedures described in the section “Calibrating the monitor colors” in Chapter 20 of the *Adobe Photoshop User Guide* have also been replaced by the Gamma Control Panel device. The gamma settings in the Apple® Control Panel let you standardize the display of images on different monitors, so that an image will look the same on different monitor/video card systems. If you find that your printed image does not match the way it appears on-screen, open the image in the Adobe Photoshop program, and then adjust the gamma settings in the Control Panel until the display matches the printed piece. By making the screen preview match the printed output, you ensure that the next time the piece is printed, a better match will be achieved. Since different printers have different color reproduction characteristics, you may want to save and load custom gamma settings for each printer. The Gamma Control Panel device includes the ability to save and load custom settings.

The color patches supplied with the Adobe Photoshop program produce high-quality color separations using standard American inks. If you are using non-standard or European inks, you should use the procedure described in the section “Color swatch calibration” in Chapter 20 of the *Adobe Photoshop User Guide*. This process calculates the color parameters used in the program’s color separation algorithms by defining the percentages of additive colors (red, green and blue) that are used to create process cyan, magenta, yellow, and black.

Requirements for using the Control Panel to adjust gamma settings

In order to use the Apple Control Panel to adjust gamma settings, you need the following software and hardware:

- Your computer must have Apple system software, version 6.0.4 or later.
- If your system uses a Truevision display card, you must have the latest NuVista drivers, version 2.1 or later.
- Some SuperMac display cards do not work correctly with the Gamma software due to a bug in their ROMs. Early versions of the ColorCard 24, Spectrum/24, and a few others also have this problem. Contact your display card vendor for the ROM update.

Installing and using the Gamma software

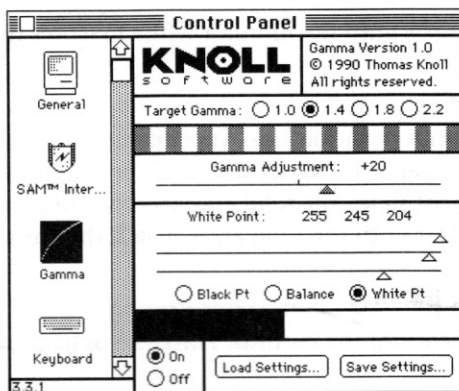
This section describes how to install the Gamma software on your hard disk, how to access the settings through the Apple Control Panel, and how to disable and enable use of the Gamma software.



Gamma

To install the Gamma software (CDEV), insert the Program disk, and drag the Gamma icon into the System Folder. You do not need to restart the system.

To display the gamma settings, open the Apple Control Panel and click the Gamma icon. The gamma settings are displayed in the Control Panel.



Use the On and Off buttons to disable or enable the Gamma software. Disabling the Gamma software causes the monitor's default values to be used.

Saving and loading Gamma settings

The Gamma software lets you save the current settings in a file. For example, you can have separate gamma settings for several computers that use the same hard disk, or, if you are going to preview duotones or film recorder output, you can save these settings in a file.

To save the current settings in a file, click the Save Settings button, and type the filename in the Save Settings dialog box.

To load a file containing saved settings, click the Load Settings button and choose the desired file from the scroll list in the Load Settings dialog box.

Performing calibration steps

To calibrate your monitor, perform the following tasks in the order presented:

Step 1. Select the target gamma

The buttons for selecting the target gamma are located at the top of the panel. *Gamma* refers to the representation of midtones in an image. Different gamma values will lighten or darken grays while preserving pure black and white. A target gamma of 1.4 is recommended for most images, including any that are destined to be printed or displayed using the Macintosh®. Images that are intended for video should have a target gamma of 2.2, since this is the typical gamma of most television sets.

Step 2. Adjust the white point

Most monitors have a bluish tint, which can be a problem when trying to match a printed sample to the screen image. To change this tint to a more neutral white, you should have a white piece of paper near the monitor for reference.

To adjust the white point:

1. Click the White Pt button.
2. Drag the three slider triangles until the monitor white matches the paper.

Step 3. Adjust the gamma

The Gamma Adjustment slider controls the overall gamma of the monitor. Just above this slider is a strip of alternating solid and patterned gray areas. As you drag the Gamma Adjustment slider, the solid gray areas become lighter or darker. Continue dragging the slider until the solid areas match the patterned areas.

Step 4. Adjust the color balance

The color balance setting control the monitor's mixture of RGB, compensating for color casts.

To adjust the color balance:

1. Click the Balance button.
2. Drag the three slider triangles until the gray areas in the gamma strip become a neutral gray (no color tints).

Step 5. Adjust the black point

The black point should be adjusted if the dark areas in the gray strip at the bottom of the panel have some color tint.

To adjust the black point:

1. Click the Black Pt button.
2. Drag the three slider triangles until there is no more color tint in the gray strip.
3. Re-adjust the color balance, if necessary, since adjusting the black point can affect the color balance.

Step 6. Re-adjust the gamma

Because adjusting the color balance and black point can affect the overall gamma, you may need to re-adjust the Gamma Adjustment slider once again.

Calibrating multiple monitors

If you are using more than one monitor, simply drag the Control Panel onto the next screen and repeat the calibration steps for each monitor.

When calibrating multiple monitors, it can be helpful to have the Adobe Photoshop program running. Open an image with a wide dynamic range and a good color selection (for example, the Flowers image from the Tutorial disk). Create another window for the image with the New Window command and place it on the second monitor. The image provides excellent feedback when the calibration is correct.