

AdobeSM Customer Services

Digital Screening Technologies

This document describes some of the digital screening technologies available for printing PostScript™ images on high-end imagesetters. It also describes how to use these technologies with Adobe Photoshop. For information on how digital halftones are created and an overview of the issues involved in producing optimal screen sets, see the technical note “Understanding Digital Halftones.”

THE ORIGINAL, OPTIMIZED DIGITAL SCREENING TECHNOLOGY

The RT Screening method, the first digital screening technology used by Adobe Systems, was developed by Linotype-Hell* and licensed to Adobe Systems.

RT Screening technology uses screen angles and frequencies optimized for digital output. The technology calculates a limited combination of screen angles and screen frequencies to approximate those used in traditional color separations. RT Screening technology produces screens that are less accurate than conventional screens and some of the newer screening technologies.

ADVANCED SCREENING TECHNOLOGIES

Several newer technologies—Accurate Screens™, Balanced Screens™, and HQS Screens™—are now available for use with various imagesetters. All of these technologies incorporate a new technique, called Supercell, to structure halftone cells. The Supercell technique calculates the placement of pixels for large groups of halftone cells (from 300 to 3000 cells) rather than for a single cell at a time. The Supercell method increases the accuracy of screen angles and frequencies so that it is possible to generate virtually moiré-free screen sets for different output devices.

ACCURATE SCREENS TECHNOLOGY

Accurate Screens technology, developed by Adobe Systems, is hardware-based and device-independent so that the technology can be built into devices from different manufacturers. Accurate Screens technology is available in PostScript Level 1 imagesetters using the RISC-based Emerald controller from several—including Agfa®, Autologic, Birmy Graphics, Monotype®, Scangraphic, and Varityper. All PostScript Level 2 high-resolution imagesetters (but not low-resolution devices such as the Apple IIg LaserWriter) include Accurate Screens technology. Accurate Screens is described in detail in the book *PostScript Screening: Adobe Accurate Screens* by Peter Fink, published by Adobe Press.

HQS SCREENS TECHNOLOGY

HQS Screens technology is developed by Linotype-Hell and is available only with the Linotype imagesetters containing the RIP 30 or RIP 40. HQS Screens is software-based; software must be downloaded to the RIP to enable a screen filter to produce the optimized screen set.

For more information about HQS Screens technology, contact Linotype-Hell.

BALANCED SCREENS TECHNOLOGY

The Balanced Screens technology was developed by Agfa-Compugraphic and works with SelectSet™ 5000 and SelectSet 7000 imagesetters. Like HQS, Balanced Screens is software-based and device-dependent. Currently, Balanced Screens supports only two dot shapes—round and elliptical.

For more information about Balanced Screens technology, contact Agfa Corporation.

USING ADVANCED DIGITAL SCREENING TECHNOLOGIES WITH PHOTOSHOP FILES

Use any of these digital screening technologies when printing Photoshop files from Adobe Photoshop or from other applications. To print Photoshop files from other applications, see the last section in this document, “Printing Photoshop Files from Other Applications.”

To print Photoshop files from Photoshop using RT Screens:

- 1 Check with your print shop for the preferred frequency, angle, and dot settings for your halftone screen.
- 2 Choose Page Setup from the File menu, and click the Screens button to open the Halftone Screens dialog box.
- 3 Enter the values supplied by your print shop for the frequency, angle, and dot shape.
- 4 Click OK. Click OK again.

To print Photoshop files from Photoshop using Accurate Screens:

- 1 Contact the manufacturer of your imagesetter for the tested screen set combinations.
- 2 Choose Page Setup from the File menu, and click the Screens button to open the Halftone Screens dialog box.
- 3 Make sure that the Accurate Screens check box is selected.
- 4 Enter the values supplied by the manufacturer in the Frequency and Angle fields. If screen sets are not available from the manufacturer, click the Auto button, and enter the device resolution and line screen that will be used. Because the screen sets generated by Auto Screens may not have been tested for your imagesetter, they may be less accurate than screen sets from your manufacturer.
- 5 Click OK. Click OK again.

To print Photoshop files from Photoshop using HQS Screens:

- 1 Make sure that the HQS Screens option is turned on at the RIP.
- 2 Choose Page Setup from the File menu, and click the Screens button to open the Halftone Screens dialog box.
- 3 Enter the line screen frequencies and screen angle supplied by Linotype-Hell.
- 4 Make sure that the Use Accurate Screens check box is deselected. Click OK. Click OK again.

To print Photoshop files from Photoshop using Balanced Screens:

- 1 Make sure that the Balanced Screens option is turned on at the RIP.
- 2 Choose Page Setup from the File menu, and click the Screens button to open the Halftone Screens dialog box.
- 3 In the Frequency field, enter the conventional screen frequencies (such as 150 lpi) for each of the CMYK inks; in the Angle field, enter the traditional angle for each ink (15 degrees for cyan, 75 degrees for magenta, 90 degrees for yellow, and 45 degrees for black).
- 4 Choose Ellipse, Diamond, or Round from the Shape pop-up menu to specify the dot shape. If you want to use another dot shape, contact Agfa Corporation for more information.
- 5 Make sure that the Use Accurate Screens and Use Printer Defaults options are deselected. Click OK. Click OK again.

PRINTING PHOTOSHOP FILES FROM OTHER APPLICATIONS

To export halftone screen information with a Photoshop file, you must save the file in the EPS format.

To save a Photoshop file with halftone screen information:

- 1 Choose Save As from the File menu, rename your file, and choose EPS from the File Format pop-up menu. The EPS Format dialog box appears.
- 2 Select the Include Halftone Screens check box. Click OK. Your Photoshop file is now ready to be placed into and printed from other applications.

To separate a Photoshop file using Adobe Separator™:

- 1 Open the Photoshop file to be separated in Adobe Separator. The Adobe Separator window appears.
- 2 Click PPD if you were not prompted to locate a PPD (PostScript Printer Description) file.

3 Select the PPD file that corresponds to the digital screening technology you will use with your output device:

- *RT Screening*: Use the PPD, for your output device, included in Adobe Separator. The PPD files that ship with Adobe Separator are based on RT Screens technology.
 - *Accurate Screens*: Use the custom-made PPD, available from the manufacturer of your high-resolution imagesetter. You must use the PPD supplied by the imagesetter manufacturer to engage Accurate Screens.
 - *HQS Screens*: Use the special HQS PPD supplied by Linotype-Hell for your RIP 30 or RIP 40 imagesetter.
 - *Balanced Screens*: Use the special PPD supplied by Agfa Corporation (the PPD file name extension should be preceded by an *SF*, e.g., AGFA SelectSet500SF.PPD) for the imagesetter.
- 4 Set the remaining separation options as appropriate, and print the separations. See your Adobe Illustrator documentation for more information.