

How to trap using Adobe  
trapping technologies





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# Introduction

## A problem that has been around since Gutenberg's time

In the 16th century, Johann Gutenberg had press problems galore! He printed from metal type of his own making onto animal skin called *vellum*. The problems of press register were not unknown to the famous printer.

If the vellum was too dry, it wouldn't hold Gutenberg's secretly formulated ink. So he would gently dampen the vellum just prior to printing on it.

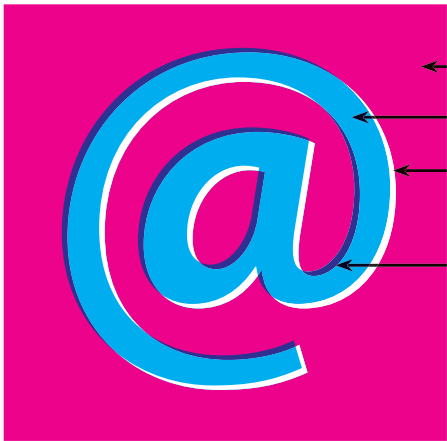
As the paper dried, it changed shape, causing slight imperfections in his books.

Fortunately, most of Gutenberg's printing was done in a single color—most of the color ornamentation in his famous 42-line bible was added by artisans after printing. If Gutenberg had decided to print his breathtakingly beautiful bibles in multiple colors, he wouldn't have been able to keep the colors in register or achieve the quality of artistry he sought.

### Gutenberg avoided trapping

His solution to press register error was to avoid situations where color could go out of register. As printing has become more precise, so has the need to control paper and press conditions, and the precision of placing one color atop another when printing multiple colors.

The sophistication of printing has also improved, as has the need to prevent press register problems before they occur. This is a process of building better presses and processes, and by improving preventive elements in the artwork we prepare for printing. One of these preventive techniques is the process of trapping jobs in advance of printing.



The background color is set to 100% magenta.

The intended color of the letter is set to 100% cyan.

If the press goes out of register, the cyan letter shifts to the upper-left, creating a partial outline of white paper showing through

... and a partial dark blue outline appears where the cyan and magenta overprint.

# What is trapping?

## When good presses and good paper go bad

Trapping is a prepress procedure that introduces areas of color into color separations. When printed, these areas obscure potential register errors.

These errors are usually caused by the paper shifting or changing shape while it is printed, or by presses or plates that are out of register. As a result, the colors print incorrectly.

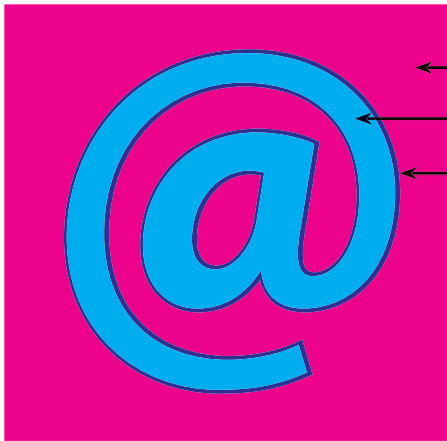
Excessive register error is evident when the colors in an image appear blurry, but typical register error is much more subtle. When colors go

out of register, the edges of touching colors either overlap, creating an unattractive color intersection, or they spread apart, creating a partial outline of white paper showing through (See the illustration on the facing page).

Compensating for register error involves corrective trapping elements which can be surprisingly complex, for artwork can have many different colors and types of color intersections.

The methods for creating corrective trapping elements must be extra-

ordinarily sophisticated—they must resolve every possible press register error for any combination of colors and printing elements.



### How trapping solves register problems

The background color is set to 100% magenta.

The intended color of the letter is 100% cyan.

A trapping element added to the illustration spreads the lighter color (cyan) into the background. In this example, the trapping element is cyan. The thickness of this element is typically very small, but it is adequate to cover any anticipated press register error.

(The size of the register error and trapping correction are exaggerated in these illustrations to show the effects of misregister and trapping.)

# Common printing problems

## Production processes contribute to register error

Occasionally a press produces printing that is out of register. Reasons can include poorly maintained machinery, mishandled printing plates, mis-managed printing data, poor raw materials, or human error.

### Paper can cause register error

Paper can cause register error if it is manufactured incorrectly. If its affinity to water isn't controlled in production,\* the paper can change size slightly on the press, causing register error.

### Paper bounce can cause problems

Paper that prints out of register is often caused by the sheet hitting the gripper stop in the press, and bouncing slightly backward before the gripper closes.

In a multicolor press, the sheet is handed off from one press unit to the next, introducing an opportunity for paper bounce between each exchange. If a press is set incorrectly, or if a press is run too fast for optimum printing conditions, register error occurs more often and more readily.

Sometimes the pressure of deadlines cause press operators to run their machines too fast, increasing the chance of register error.

Press condition is also a cause of press misregister. If machinery isn't properly maintained, the press becomes a factor in poor register, creating trapping problems.



Register problems can manifest themselves in a variety of ways. In example 1, the red is set to knock out the cyan. If the press goes out of register, the red overprints the cyan, creating a dark brown hairline on one edge and a white hairline on the other. In example 2, the yellow text is designed to knock out the magenta. If the press goes out of register, the letters take on a brownish drop shadow.

Example 3 shows the effect of white type reversed-out of a rich black. If the press goes out of register, the letters are compromised; small type can become illegible. Example 4 shows the relationship between cyan and yellow in a knock-out situation. If the press goes out of register, a white gap appears up at the top of the symbol, and a green halo appears at the bottom.

# How trapping solves these problems

## When done correctly, trapping does its job behind the scenes

### Trapping introduces corrective color elements to a printing job

In the process of trapping, new elements are added to the color separations. When printed, these elements compensate for potential problems on the press.

In general, the amount of error expected in a quality printing job is no more than half of one halftone dot. Trapping elements are usually generated to the same size, adding color components that will cover or fill errors on press—if they occur.

Trapping systems introduce microscopic elements in ways that are both

sophisticated and surprisingly subtle. A properly generated element is the right color and shape.

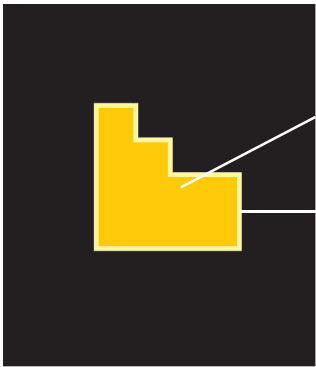
Today's creative printing projects call for trapping elements that are more complex and trapping techniques that are superior to those used in the past. With gradients, superimposed images, metallic inks, and extraordinary combinations of artistic elements, trapping must be more capable than ever before. Adobe trapping technologies apply precise vector analysis to all marking operations to combine the benefits of raster- and vector-based trapping. Raster-based trapping produces accurate color and

page description while vector-based trapping provides speed and high-quality trap shaping.

### Correcting errors shouldn't create new problems

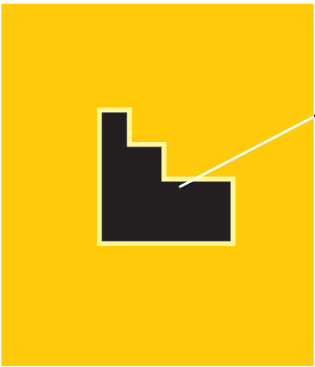
When trapping is done well, the new printing elements don't show at all; they fix the problem and remain essentially invisible in the process.

Over-assertive trapping elements can become visible and create more of a problem than the problem they were meant to solve.



The yellow-gold object is lighter than its surrounding color. A trapping element spreads into the darker color.

The yellow-gold trapping element overprints the background color and prevents register error from appearing as a white gap.



The black object is darker than its surrounding color. The trapping element is choked into the darker color.

Simple trapping elements are called "spreads" and "chokes." In the example at left, the yellow-gold object spreads into the black object to prevent register error. In the example on the right, the yellow background color is choked into the black object. In both cases the yellow-gold trapping element would overprint, and it wouldn't be visible as it is in these illustrations.

# Common trapping situations

## Why trapping is important

### Colors that touch usually require trapping

Colors that touch create trapping risks if the press goes out of register. Depending on the colors and their intensity, a trapping system will generate a new printing element to compensate for potential register error.

Where similar colors touch, trapping isn't necessary, but colors that are printed by the different units of a printing press are prone to print out of register and are the targets for corrective trapping elements.

The four common process colors in commercial printing are cyan, magenta, yellow and black. These four colors can produce millions of combined colors. Often the artwork may require two or three of the process colors to be printed atop or adjacent to one another.

### Even the finest printing needs trapping

Rarely does a job need no trapping at all.

Even today's modern presses cannot hold perfect register—a small amount of register error can occur in normal printing.

### Designing around trapping

Projects designed to be printed without trapping are made so that colors don't touch, or if they do, they share a common palette.

To avoid trapping, it is a relatively easy, but jobs designed this way lack the benefits of a full-color printed project.



"Comic book style" uses a black outline to trap all color elements. When black overprints, it prevents register errors from showing. This solution is perfect for some types of artwork, though inappropriate for more common illustrations and text.

# Methods for avoiding register problems

## A number of routes to a trap-free project

### Avoiding trapping requires care

Clever designers can avoid the perils of press misregister by designing projects that don't require trapping.

One common method for avoiding register error is to design projects where colors don't meet or overlap. This technique creates a serious constraint to design.

### "Comic book style" art looks like a comic book!

"Comic book style" represents a classic method for avoiding register error. Since the 1930s, artists have used a method called *black trap* to cover

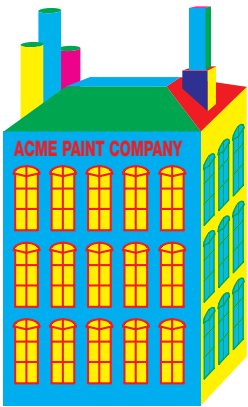
all potential register errors with a relatively thick line of black ink. This technique is still used to avoid register error.

### Common color palettes

Another method to avoid register problems is to use color palettes that contain a small percentage of the other colors in a design. For example, where yellow and cyan touch, a cyan-yellow trap element is needed, but with a common color palette. By adding 20 percent yellow to the cyan in a custom palette, trapping becomes unnecessary, because the colors have the 20 percent yellow in common.

This technique has several advantages: Design is easy, trapping concerns are eliminated, and processing time is reduced.

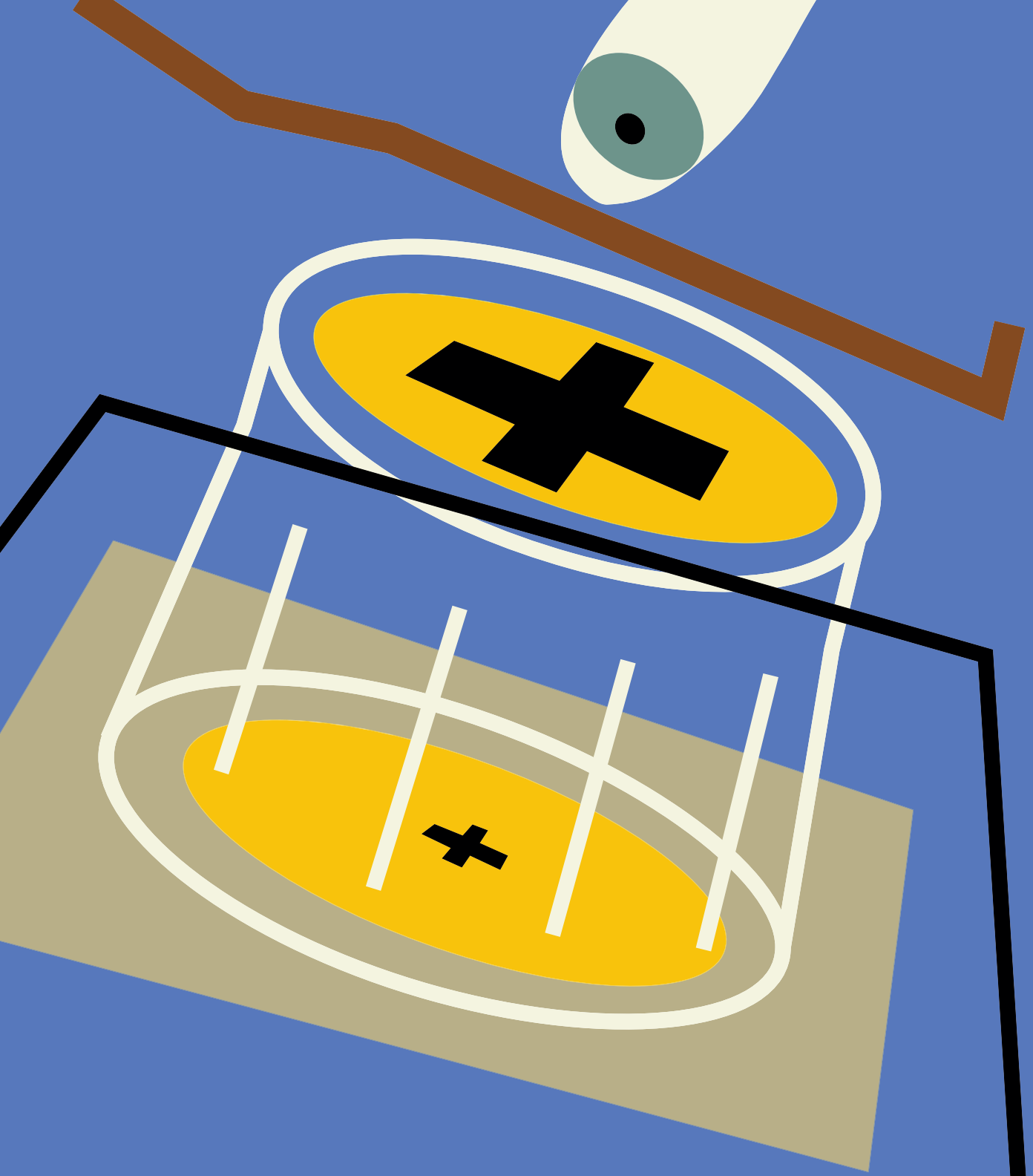
When properly planned, common color palettes can be attractive, and they provide an acceptable but complex solution to press misregister risks.



The illustration on the left uses solids and tints of process colors and has many opportunities for register error. The illustration on the right uses a palette where each color contains at least 15% of the adjacent colors; it requires no trapping. The challenge of working with



common color palettes is the limited number of color choices available in the palette. This is a complex solution to a problem that can be solved more easily and effectively with Adobe trapping technology.



Trapping details

# Trapping details

## Gradients present real challenges for any trapping technology

### Gradients

Gradients challenge any trapping system because the colors and their values change within the art, and the relationship between the gradient and its background changes continuously.

Before electronic prepress technologies existed, this particular problem would have been insolvable, or it would have been solved with crude techniques. With Adobe trapping technologies, gradients can be trapped effectively, easily, and successfully.

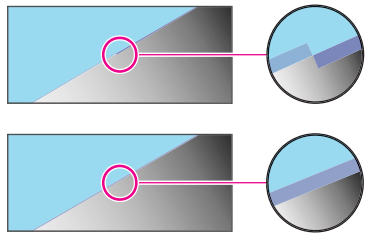
### Gradients-on-gradients

A gradient against a solid color is reasonably easy to trap. Usually it is trapped with a line of the unchanging color. But if two gradients overlap, the challenge is much greater. The lighter color will change as the gradients interact.

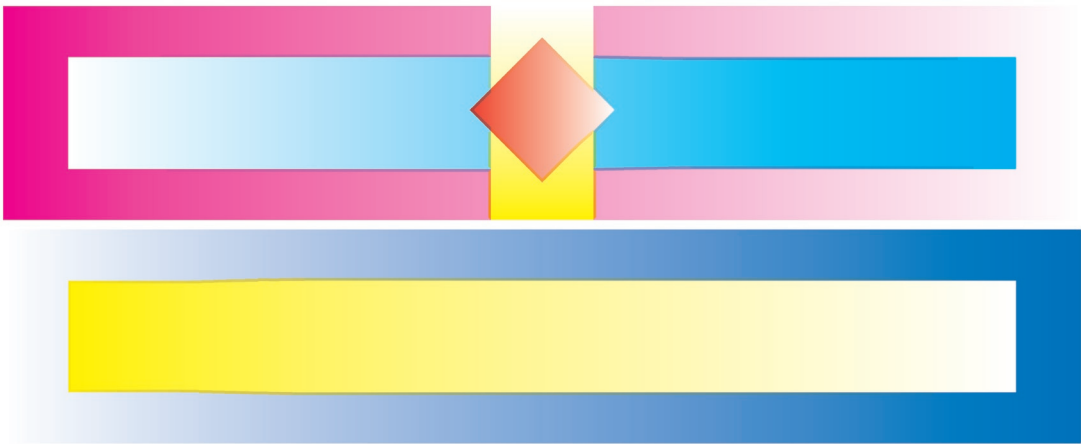
### The sliding trap

Adobe trapping technologies use a sophisticated trapping element called a *sliding trap* to trap complex gradients. This trapping element is

unique to Adobe trapping technology, and it significantly improves state-of-the-art trapping technology.



*A traditional trap, above, is abrupt, and calls attention to itself. A sliding trap, below, is much more subtle and effective.*



*In the gradients shown here, the challenge is to trap two colors where the value of each color changes continuously. In the upper example, four different gradients must be trapped against each other with dynamic trapping elements. The lower example requires a gradient trap*

*that follows the yellow gradient. This type of trap is exceptionally difficult, but Adobe trapping technologies handle these situations with ease. (The trap elements are exaggerated in these illustrations.)*

# Trapping details

## Novel color and image combinations

### Metallic and spot colors

Curiously, some of the most celebrated trapping solutions in the graphic arts industry cannot analyze and trap non-process colors successfully.

If a spot color or metallic color is introduced into a design, it creates a special circumstance that challenges trapping technologies and causes most to fail. Many fully-automated processes default instead to a no-trap intersection between the spot or metallic colors and other elements in the design.

If designs include opaque inks, like metallic inks, a fully capable trapping solution such as Adobe

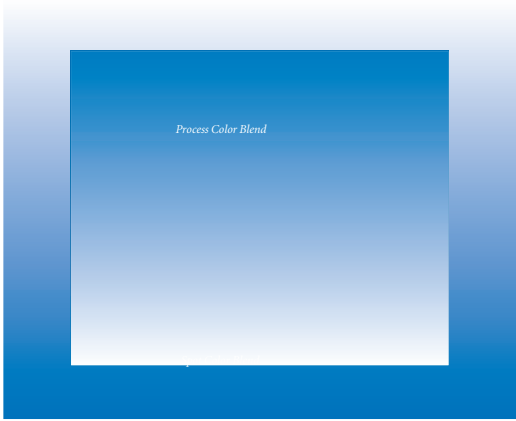
trapping technology, creates traps between these inks based on supplied knowledge of the order in which the inks are printed. This process assures that traps spread in the direction that retains the shape of the original design.

### Varnishes and non-printing inks

Some printing jobs include varnishes, which may cover all or a portion of a page, or other transparent or special inks that don't need trapping, such as those used for designating die cuts. Adobe trapping technology allows such inks to be designated as transparent. It then ignores transparent colors when creating traps.

### Images against gradients

The capabilities of a sophisticated trapping system are put to the test when an image is floated over a gradient—or vice versa. A sophisticated trapping system will analyze the colors on each side of the intersection at every point and then create a trap color that varies to accommodate the color changes. Adobe trapping technology does just that, and it places the trap to straddle the edge smoothly or it places the trap according to custom settings.



*The example on the left will elude most trapping systems—trapping a process color gradient into a spot color gradient. Trapping complex images into gradient backgrounds poses one of the greatest challenges to a trapping technology.*



*In the example on the right, the image is to be trapped into a process color gradient. Adobe trapping technologies handle both easily.*



# Trapping details

## Some design elements need special trapping

### Images with complex backgrounds

In the past, effective trapping would have been nearly impossible when overprinting a color photo on a complex background. The common prepress method would have been to knock the photo out of the background, and then print the photo in the knock-out.

With Adobe trapping technologies, a photo can float over any combination of graphic elements. The necessary trapping elements prevent unattractive intersections if the press goes out of register.

### Images on images

Floating images atop other images creates a surprisingly complex situation for a trapping technology. With Adobe trapping technologies, it is now easy to do a better job. The trapping system analyzes the intersections between the images, and creates a correctly colored trapping element to prevent register error from showing on the printed sheet.

This trapping element is determined by an analysis of the pixel values along the intersection. Then the trapping element is generated to prevent press trouble without calling undue attention to itself.



If a continuous-tone image floats over a complex background, the challenge of trapping is compounded. If an image overlays another image, the situation is similar. Trapping elements must take both foreground color and tonal values



into account, and the trap element created must be effective and subtle. (The trap elements are exaggerated in these illustrations.)

# Trapping details

## Rich black trapping

A technique for printing black often includes creating a *rich black* or a *super black*—a combination of black and a percentage of one or more of the other process colors.

### Rich blacks

Placing tints of colors under black makes the black appear richer. The tint and intensity of a rich black can be adjusted to suit the design or press criteria. Putting tints of colors under black makes the black appear richer and can be more attractive in a project design.

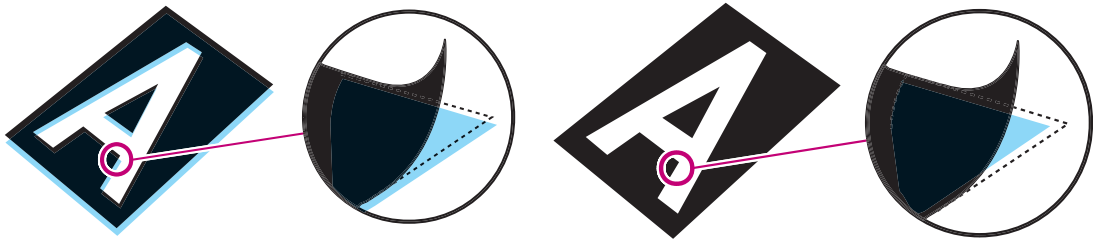
### “Keep-away” trapping

A problem arises, however, when copy is reversed out (also called *knocked out*) of a rich black color. If the press or paper go slightly out of register, one or more of the component colors can “peek” out from behind the black.

To avoid this problem, capable trapping systems create a *keep-away* trap, where the artwork is reversed out of the black at final size, while any component colors are spread away from the knocked-out black. The resulting knock-out is more tolerant of register error.

### Adobe trapping systems create effective rich-black traps

A sophisticated trapping solution is needed to create such keep-away traps in all possible circumstances, and Adobe trapping technology can generate such elements for any printing situation.



If artwork is reversed out of a rich black and the press goes out of register, one or more of the component colors can “peek” out of the reverse (example on left), affecting its appearance. The solution to rich-black trapping is the

“keep-away” trap (example on right), where colors other than the topmost color are printed away from the defining color. In this example the cyan is held back from the edge of the black.

# Trapping details

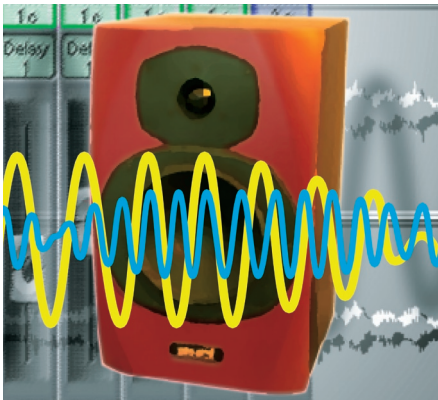
## Vector-to-continuous-tone trapping

Adobe trapping technology allows you to configure the placement of traps depending on the color relationship between them. In most cases, where images are simply abutting or knocking out of larger vector objects, a trap that straddles the boundary consistently and doesn't move from side to side is more pleasing to the eye than one that moves back and forth in an attempt to spread the lighter color at all times. The default centerline trap for image-to-vector trapping accommodates this situation.

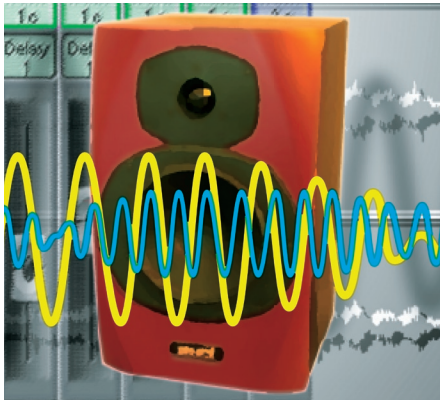
If text is placed on top of an image, however, and the text is very light compared to the image data, a centerline trap risks choking the text, and thus rendering it unreadable. Adobe trapping technology can be used to choke the image data in these cases, causing the text to spread and retain its intended appearance—including color—even in case of misregistration.

Conversely, if dark text is placed on a light image, the trapping system should spread the image data into the text to avoid an undesirable fattening

of the text. In unusual cases where the image data is composed of vector-like regions of highly contrasting areas, the trapping system should analyze the relative darkness of the two sides of the boundary at each point, and revert to the normal mode of placing the trap as is done between vector objects.



*In the illustration above, the vector illustration overlaying the continuous-tone image creates a challenge for trapping systems. The ability to create trapping elements that vary with the relationship between the foreground and background images is*



*a job for the most sophisticated trapping technology. The illustration on the left isn't trapped, while the illustration on the right is. (The trap elements are exaggerated in the illustrations.)*

# Trapping details

## Text over continuous-tone-images

The complex intersection of colors that occurs when design elements that overlap create complex intersections that require special trapping elements.

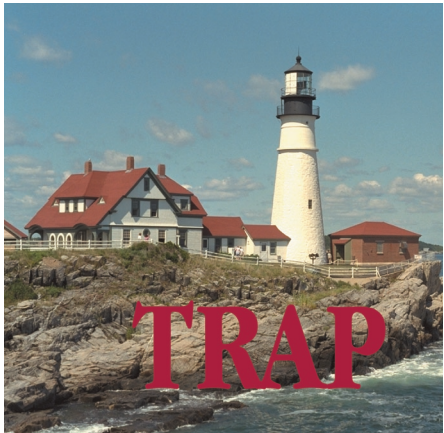
### Text over continuous-tone images

If typographic elements pass over photos or other continuous-tone images, the intersection colors vary significantly as the photographic content is random. In these situations, the trapping technology must

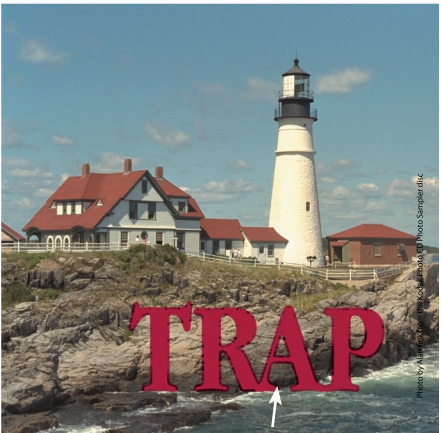
consider the color relationships of the text and the background. Based on these relationships, the trapping system builds the appropriate trapping elements.

Adobe trapping technologies are capable of making such sophisticated trap elements, which eliminate register error without introducing unsightly color elements to the image.

With Adobe trapping technologies, the setting for such sophisticated traps can be easily modified by the operator to change the resulting trap elements.



*When creating trap elements for text over continuous-tone images, a trapping system must consider the colors in the continuous-tone image under the text (This image hasn't been trapped).*



*Notice that the trap color, created by Adobe trapping technologies, changes according to the image color behind the lettering, and no trap is generated where the lettering crosses a highlight in the image (indicated by the arrow). (The trap elements are exaggerated in this illustration.)*

# Trapping details

## Clipping paths provide effective edges for trapping

Adobe trapping technologies treat the edges of images with clipping paths as vector objects rather than pixel-based images. Trap elements are created and placed between clipping paths and other vector objects on which they are superimposed, resulting in a better trap than simply spreading an equivalent pixel-based image.

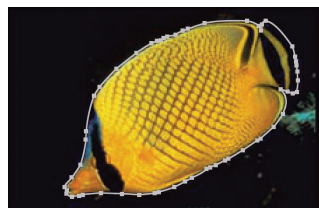
The pixel colors of the underlying image along the edge of a clipping path are used to create the trap colors, rather than expanding the image into its outlying pixels. The method used in Adobe trapping technologies ensures consistent colors between the

trap element and both sides of the underlying objects. This commitment to superior image quality and appearance distinguishes Adobe trapping technologies from others in the industry.

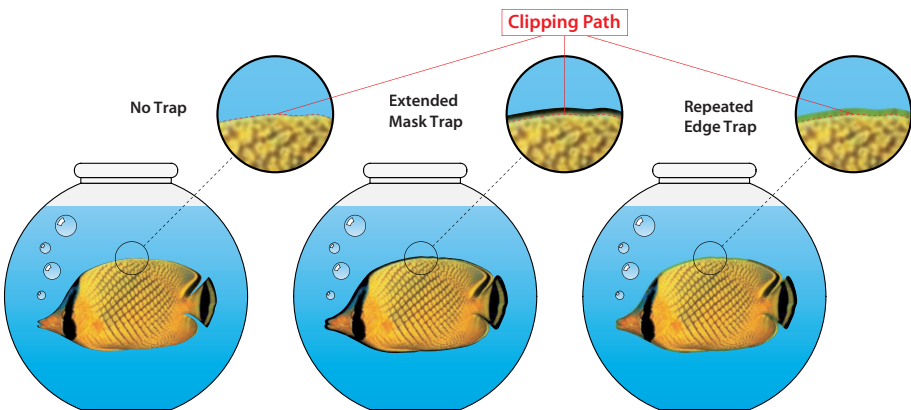
### Adobe knows the industry

With its commitment to the graphic arts industry and knowledge of the needs of graphic arts professionals, Adobe develops products that work hand-in-hand to deliver top-notch results. Close relationships between Adobe trapping technologies and Adobe PostScript 3, Adobe PDF, Adobe Photoshop, Adobe Illustrator,

and Adobe InDesign provide consistent and predictable trapping results across applications, making for a flexible and reliable trapping solution.



The original fish image in Adobe Photoshop shows the clipping path drawn by the artist. Adobe trapping technologies use this clipping path as a trapping boundary.



Superimposing images with clipping paths on vector artwork creates a challenge for trapping systems. In the example at left, the fish isn't trapped against the illustration of the fishbowl. In the middle illustration, the image has been trapped by an unsophisticated method,

resulting in a border of black pixels around the fish. In the example at right, Adobe trapping technologies repeat the pixels of the vector illustration behind the clipping path, using the path to produce a more attractive product. (The trap elements are exaggerated in these illustrations.)

# Trapping details

## Where thin strokes need special handling

### Knowing its limits

One trick of successful trapping is to acknowledge special circumstances that affect print quality. Trapping thin areas can be a challenge, because the thickness of trapping element can exceed the thickness of the artwork or the space available for the element.

A savvy trapping system can create trapping elements for thin areas and account for available space and thickness of the original design element.

### Type poses trapping challenges

The thin strokes of common letter styles are often thinner than the trap elements created to prevent register error.

If a trap element spreads into an area where it is larger than the available space, Adobe trapping technologies limit the trapping element to half of the space available. This limitation ensures that traps never extend beyond the opposite boundary of a thin area.

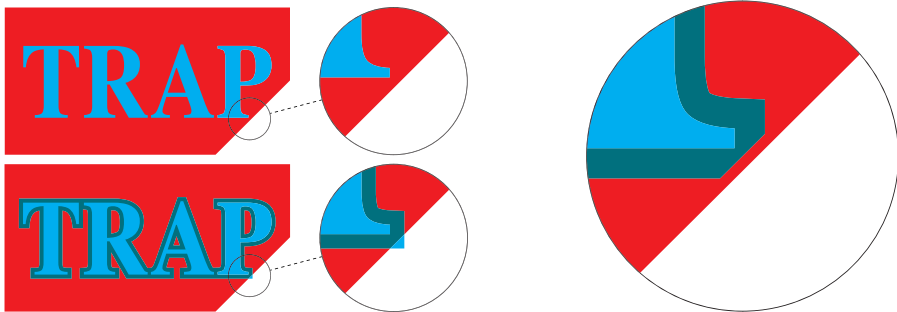
Such consideration isn't restricted to typographic elements. Adobe trapping technologies limit the shape of any trapping element that would extend beyond an adjacent design element.

Although these adjusted trapping elements are necessarily smaller than the basic trap thickness, Adobe trapping technologies defer to

creating an aesthetic appearance rather than make an unsightly trap.

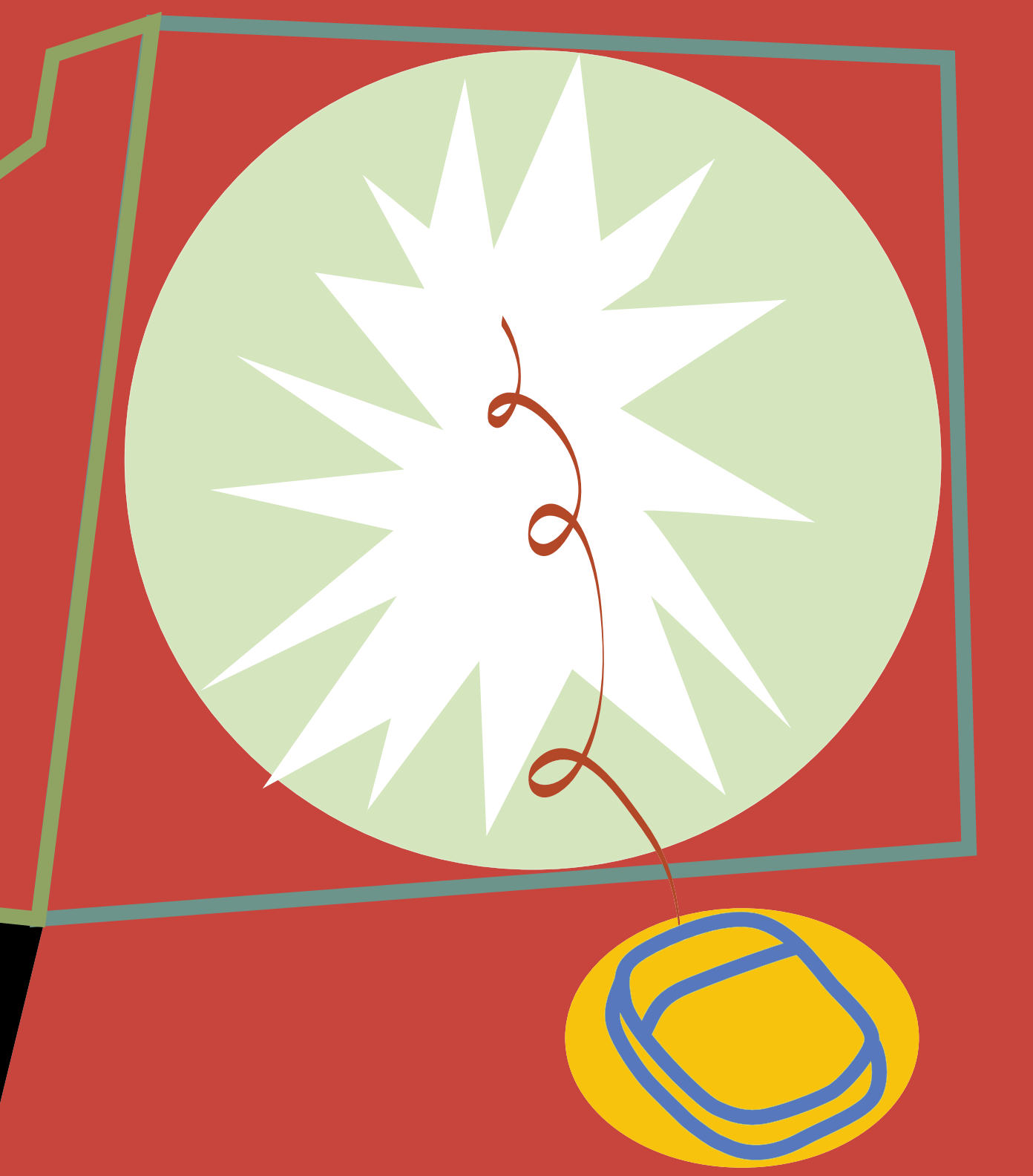
### Workflow optimization

The unique high-quality trap shaping and thin element trapping capabilities of Adobe trapping technologies eliminate the tedious manual inspection and editing of traps. Minimizing workflow impact due to trapping is a requirement of a quality automated trapping technology.



Delicate typographic elements demonstrate the need for special treatment for thin areas. In the top example, the cyan letter needs trapping because of the potential for register error. In the bottom example, conventional trapping methods create an unsightly stroke around the

letter, protruding into another area of the artwork. Adobe trapping technologies (right) create the trapping element but adjust its size to half the available area so the trapping element doesn't extend beyond the edge of the adjacent color element.



Adobe technology solves  
trapping problems



# Adobe technology solves trapping problems

## World-class trapping makes successful printing more practical

Adobe trapping technologies are a practical and effective solution for graphic arts prepress preparation. They fit into production processes involving computer-to-plate and filmsetter applications.

Years of development have helped shape Adobe's prepress technologies into products that meet and exceed the needs of our users.

The previous pages described in general, the level of sophistication achieved with Adobe trapping technologies. These next pages describe the additional features that make the technology truly exceptional.

### Trap width setting

*Trap width* allows the user to set the width of the trap in points. The minimum is 0 points, and the maximum is 8 points (0.11 inch). The vast range of values makes trapping possible for a wide range of production processes, including screen printing and flexographic printing on coarse substrates where larger trapping elements are appropriate.

### Trap Color Reduction

Occasionally the color generated for a trapping element is too dark, especially when trapping pastel or highly contrasting colors. A *Trap Color Reduction* can be entered to reduce the intensity of the trapping elements making them more subtle.

### Black Color Limit

Black Color Limit is a setting that let's you control which black tints are treated as black. Lowering the value of this setting causes tints of black less than 100% to be processed for trapping using the rules of black trapping. This setting is especially useful in printing in environments that have considerable dot gain.

### Black Density Limit

*Black Density Limit* is a user-defined value that dictates the neutral density value at which, or above which, Adobe trapping technologies consider an ink to be "black." Any ink with a neutral density value higher than this value is handled using the trapping rules for black trapping.

### Black Width

Larger trap widths are valuable with black where the trap is largely obscured but the effect of register error is severe.

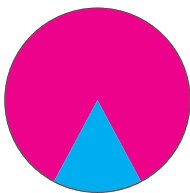
Adobe trapping technology allows a separate trap width to be specified for black inks or any ink handled with the trapping rules for black.

### Printers Marks

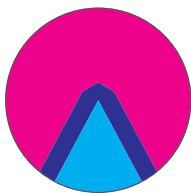
Printer's marks—register marks, trim and fold marks—are marks used for page positioning and finishing. These marks shouldn't be trapped. Adobe trapping technologies correctly identify objects designated with 100 percent value in all channels as printer's marks.

Adobe trapping technologies don't create traps between a printer's mark and a background, between any object that lies on top of a printer's mark and the printer's mark, nor does it create reverse traps along the edge of a printer's mark.

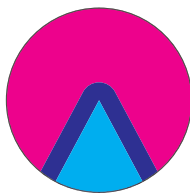
### Trap Join Styles



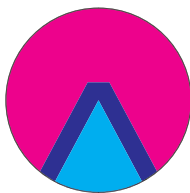
No Trap



Miter



Round



Bevel

# Adobe technology solves trapping problems

## World-class trapping makes successful printing more practical

### Internal Image Trapping

*Internal Image Trapping* turns on trapping for the interior of pixel-based images. This option is designed to trap such images where color trapping is necessary. An example might be a business graphic that has been rasterized as a bitmap in Adobe Photoshop. Normal photographic images generally don't need to be trapped internally.

### Neutral Density

Adobe trapping technologies calculate which color to spread based on the relative neutral densities of two adjacent colors. *Neutral density* is a measure of how dark an ink is. Each ink has its own neutral density parameter.

Settings to control neutral density control are available in Adobe trapping technologies control dialog boxes. For detailed instructions, check the software manual for the individual application.

### Trap Join Style

*Trap Join Style* specifies the shape of a join between two adjacent traps. Available styles include Miter, Round, and Bevel. These styles are illustrated on the facing page.

### Trap End Styles

*Trap End Style* is a trapping parameter that specifies how Adobe trapping technologies form the end of a trap that touches another object. Trap ends may either miter away from an adjoining object, or the lighter trap color at the intersection of three objects may wrap around to meet an adjoining trap. This later overlapping style is frequently used with flexographic printing processes.

### Corner Mitering

*Corner Mitering* is a unique automatic feature of Adobe trapping technologies. It enhances the detail of trapped elements by preventing long miter points from being created

in trap elements. Though these points are sometimes the product of the trapping algorithms, the corner mitering function reduces them to mitered ends, making the trapping element more attractive.

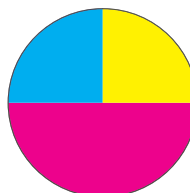


Occasionally a sharp corner is created by trapping functions.

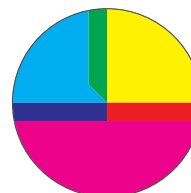


Adobe's trapping features reduce the corner to a more reasonable miter.

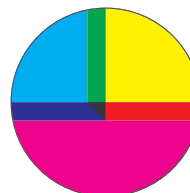
### Trap End Styles



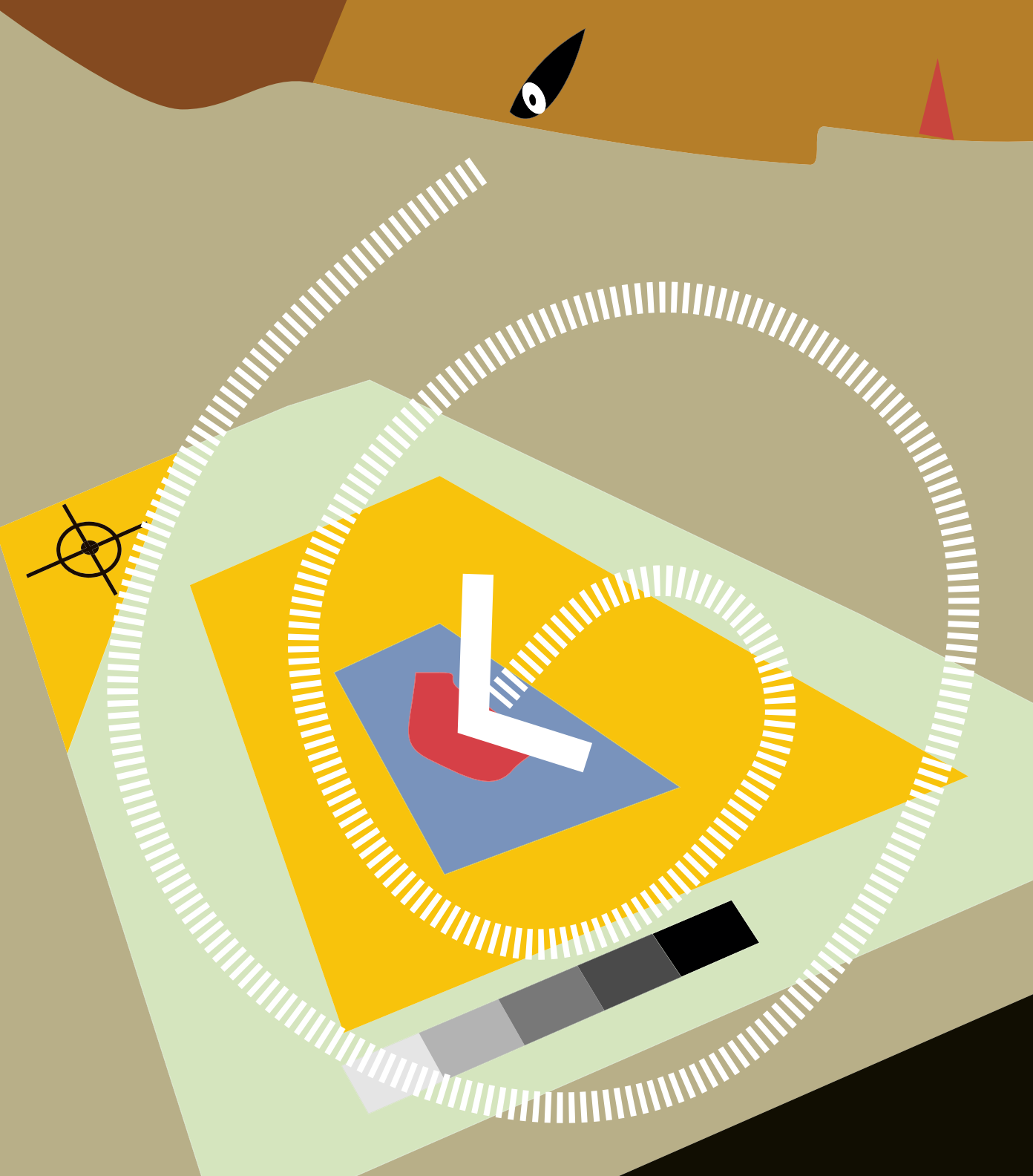
No Trap



Miter



Overlap



Adobe trapping technologies



# Adobe trapping in common workflows

## Adobe trapping technologies deliver where needed

Adobe has developed trapping technology for implementation at any point in the production workflow.

Whether trapping is to be done at the RIP, in prepress, or at the application level, an appropriate Adobe trapping solution is available, and all are based on the same effective technology to deliver correct trapping elements for any printing situation.

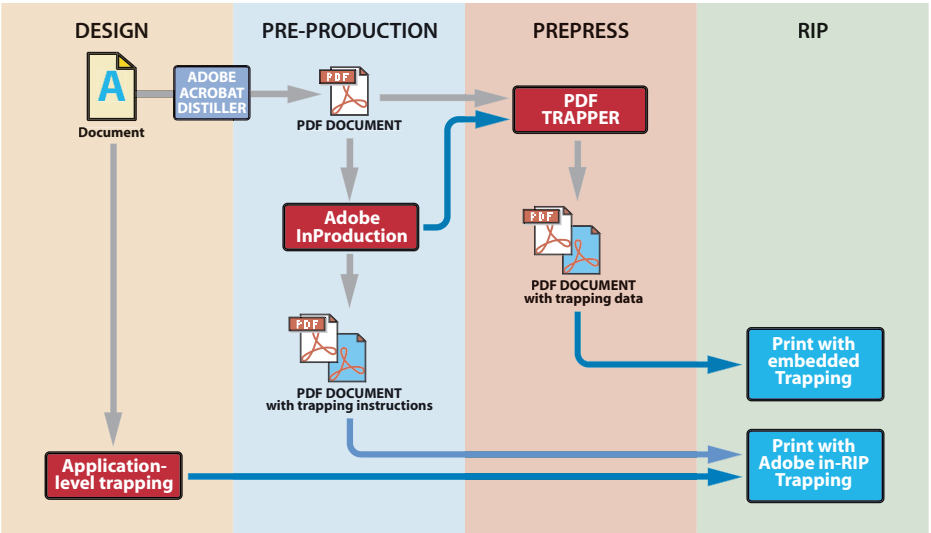
Years of development have been devoted to improving the state-of-the-art in trapping sophistication, and that effort has been embedded in Adobe InDesign, in third-party applications

based on Adobe PDF Trapper, and in Adobe PostScript 3 RIPs with in-RIP Trapping technology. By making trapping available at critical points in the workflow, Adobe offers the greatest flexibility for workflow optimization by allowing in customizing trapping to meet the needs of individual workflows. And because these applications share the same core Adobe trapping technology, Adobe-enabled trapping workflows provide consistent trapping results.

The Adobe prepress application, InProduction, and page layout applications, InDesign and

PageMaker add trapping controls to Adobe PDF and PostScript files, allowing flexible methods for trapping jobs destined for different printing processes. These tools reduce the need for the designer to be involved in trapping decisions, moving those decisions to the prepress operation.

The following pages describe the specific Adobe trapping technology implementations and how to use them effectively.



# Adobe in-RIP Trapping

## ...simplifies the trapping process

The complex process of trapping can be carried out by a specialized trapping application, by a page layout application, like Adobe InDesign, or by a raster image processor (RIP) that handles trapping as a part of imaging a job.

Several manufacturers have licensed Adobe in-RIP Trapping for inclusion in their output devices, and these RIPs provide speedy and efficient trapping on demand.

All of the trapping functions described in this booklet are possible in those devices where Adobe in-RIP Trapping is implemented. Control of the trapping

parameters is made from one of the device-specific setup options in the print dialog box.

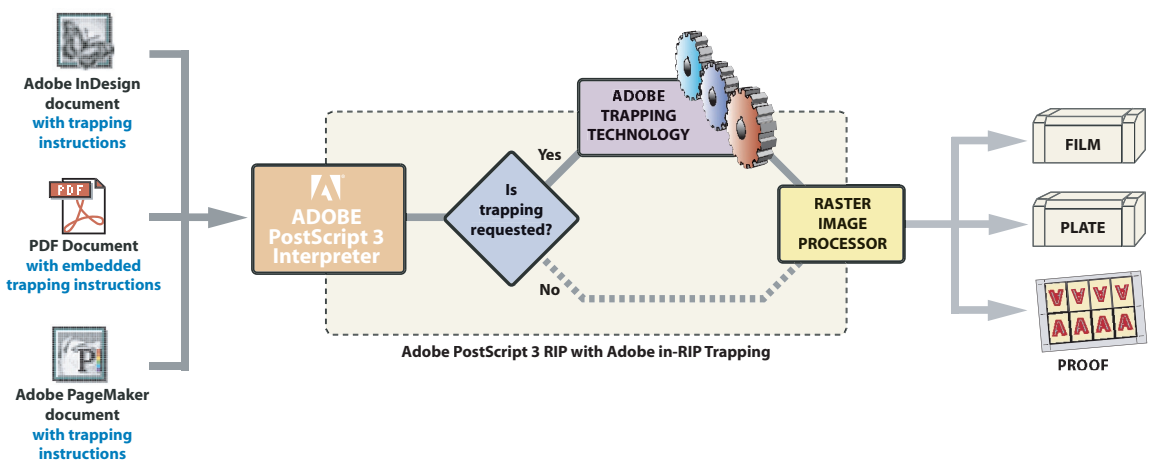
Complex combinations of trapping instructions, including trap sizes, neutral density settings, and others can be saved as a set and used according to the type of project being printed.

For example, a set of trapping parameters can be stored for offset printing at 150 lpi, and another set stored for flexographic printing at 85 lpi. Selecting one of the stored sets of parameters is as simple as choosing the stored set by name, and printing. Once a series of custom trapping

settings are stored, the process of trapping a job—no matter how complex—can begin with a few clicks of the mouse.

Adobe in-RIP Trapping is an efficient and effective method for managing trapping in a prepress production facility because it quickly traps all potential situations of misregister.

Adobe in-RIP Trapping is licensed to Adobe technology partners for inclusion in their Adobe PostScript and Adobe Extreme output devices.



# Adobe PDF Trapper

## A trapping solution for Acrobat PDF documents

Adobe PDF Trapper is native trapping technology that is licensed to Adobe technology partners, enabling them to build robust PDF-based trapping solutions.

Adobe PDF Trapper technology provides high-quality trapping targeted at PDF workflows. It is based on the same core trapping technology as Adobe in-RIP Trapping.

### Adobe Portable Document Format/Portable Job Ticket Format

Adobe PDF makes it possible to separate content-specific information from device-specific information, providing greater flexibility in a workflow.

In an Adobe PDF workflow, the page description is captured in the PDF *Page Contents* portion of the PDF document and the *Job Controls* and device-specific information are captured in a *job ticket*. The job ticket is either embedded in the PDF document or stored in an external file.

Users can specify trapping controls in the job ticket; PJTF job tickets supported now and JDF job tickets will be supported in future implementations.

Adobe *Acrobat Distiller* can be configured to create a PJTF job ticket from a PostScript file and embed that job ticket in the resulting PDF document. Trapping parameters in the PostScript file are added to the

job ticket. Alternatively, Adobe Acrobat Distiller can be configured to add default trapping parameters to the job ticket via a PostScript prep file or the Distiller startup.ps file.

PDF Trapper analyzes the PDF page contents and builds a *trapping display list*, which is later trapped by Adobe trapping technology. PDF Trapper generates traps and stores them as a *TrapNet annotation layer* in the PDF file in conformance with PDF/X and PDF 1.3 and higher. Optionally traps may be added to the PDF page content for workflows that don't support PDF annotations.

The trapped PDF file can then be printed to an Adobe Printer Job Ticket Processor (in a system employing

# Adobe PDF Trapper

## A trapping solution for Acrobat PDF documents

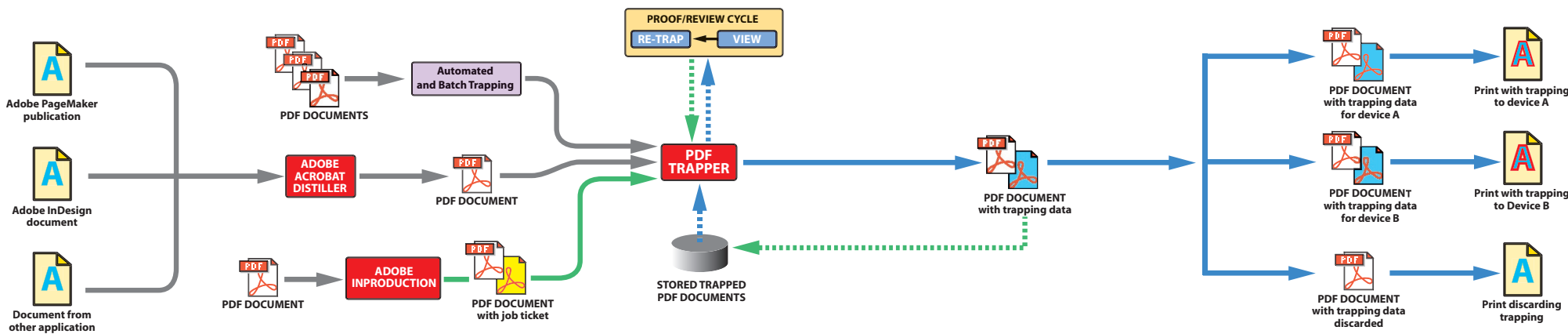
Adobe Extreme technology), an Adobe PostScript 3 device, or other PDF RIP.

Because the trapping elements created by Adobe PDF Trapper are added as an annotation layer to the PDF file, traps can later be removed or revised. A PDF file may contain multiple TrapNet annotations targeting different printers, and the operator can then select the appropriate TrapNet annotations for the target printer.

In addition, by enabling or disabling TrapNet annotations, the operator can print with or without traps. This implementation allows users to print or proof the trapped PDF file.

### Benefits of PDF Trapper

- Support for all of the features available in Adobe in-RIP trapping
- Trapped PDF files for preview in Adobe Acrobat software (5.05 and higher) or other viewers that support Overprint previewing
- Ability to store multiple sets of traps, each destined for a different output device
- Support for a trap-once, print multiple times workflow
- Ability to bind traps to Adobe PDF files, unloading trapping from RIP
- Support for advanced color handling options for device-dependent and device-independent color workflows
- Support for fully automated trapping and batch trapping
- Support for selective retrapping of individual pages in Adobe PDF documents
- Acceptance of trapping instructions specified by open standards instead of proprietary trapping control software
- Support for both internal and external job tickets
- Compliance with Adobe PDF and Portable Job Ticket Format
- Support for trapping of PageMaker®, InDesign, and QuarkXpress PostScript files distilled by Adobe Acrobat Distiller

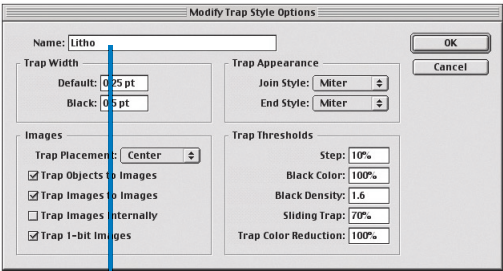


# Adobe InDesign 2.0

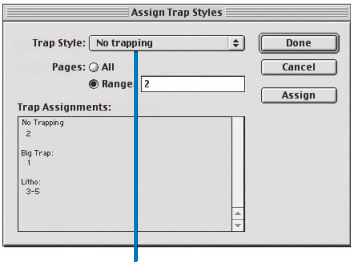
## How to use InDesign trapping features

### Specifying trapping parameters when printing from Adobe InDesign

1. With your InDesign document open, select the *Trap Styles* palette in the *Window* menu, then choose *Trap Styles*.
2. In the pop-up menu of the *Trap Style* palette select *New Style*.
3. Configure all settings to match your job's needs, then name the Style and click *OK*. Note: Application Built-In Trapping is limited to a trap size of 4 points (0.055 in.) while in-RIP Trapping can create trap elements up to 8 points (0.11 in.).
4. In the pop-up menu of the *Trap Style* palette select *Assign Trap Styles*.
5. Select the Style you want to assign to your page or page range, then enter the page range and click *Assign*; this enters your page. You can now enter more page ranges, or save the settings by clicking *Done*.
6. In the print dialog, click on *Output* on the left, then select the mode of separations that you want to use, either in-RIP or Built-In Separations, you must select one method of separations in order to use either form of trapping.
7. Select what type of trapping you want to use, either *Application Built-In Trapping*, or *in-RIP Trapping*. In order to use in-RIP Trapping you must have a RIP and a PPD that support in-RIP trapping. You must select *in-RIP Separations* before you can choose in-RIP Trapping in the Print dialog. With *Application Built-In Trapping* you can select either method of separations, and any PPD that supports separations will suffice.



The *Modify Trap Style Options* dialog box controls the named styles for trapping, making it easier to apply the styles in subsequent dialog boxes.



In the *Assign Trap Styles* dialog box, individual pages and ranges of pages are assigned trapping styles (created in the previous dialog box). In this example, page 2 is set with the *No Trapping* style, page 1 with the *Big Trap* style, and pages 3-5 with the *Litho* style.

# Adobe InDesign 2.0

## How to use InDesign trapping features

### Adjusting Ink Information

The Ink Manager is accessible from either the Print dialog or the Swatches palette. The Ink Manager controls settings for all of the characteristics of inks that influence trapping. The default settings work for most jobs, but some jobs may require adjustments. For example, when you create a varnish plate, selecting *Transparent* forces the color not to be trapped. The Ink Manager also provides control over *Neutral Density* which establishes which colors will spread into other colors. Ink Sequence is also set here to control the order in which colors print. (The order can also affect trapping). Change these

settings only if needed (for example, if required by the printer or service bureau).

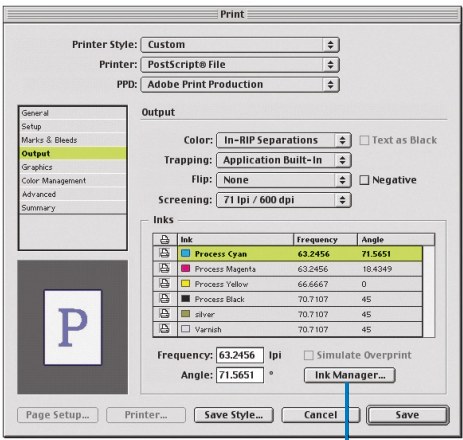
### Trapping Zones

InDesign 2.0 honors full page Zones only. The page size, including bleed, is the size of the trap zone. InDesign 2.0 allows you to trap a page spread with two different trap zones. The document can be trapped more quickly if you disable trapping for pages that don't need it. You can disable trapping in the *Assign Styles* menu.

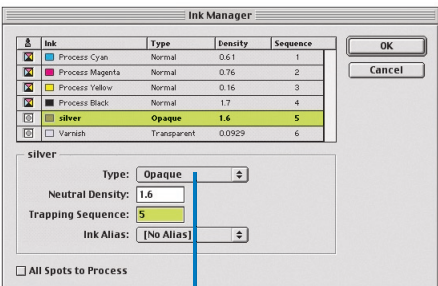
### Overprinting black

By default, InDesign overprints all objects to which you've applied black in the Swatches palette, and it overprints all Black strokes, fills, and type characters. You can disable this default in the *Overprint Black* preferences setting. If you disable *Overprint Black*, all instances of black will knock out (remove underlying inks).

For detailed information on specifying trapping parameters from Adobe InDesign, please refer to the *Adobe InDesign 2.0 User Guide*.



Open the *Ink Manager* from the *Print* dialog box.



The *Ink Manager* allows you to assign inks, set the neutral density of an ink, and set the sequence in which inks print. In this example, silver is defined as an opaque ink, which controls how that ink will trap relative to the other colors.

# Adobe Acrobat InProduction

## How to use Acrobat InProduction trapping features

1. Open the Trapping dialog box.

2. Select Enable Trapping to turn on trapping. The first time you enable trapping in a document, Adobe Acrobat InProduction automatically creates an invisible trap zone around each page and applies the Device Default style. This style instructs the RIP or job ticket to specify trapping controls for each page according to device-specific parameters.
3. Apply trapping settings by doing one of the following:

• To apply the same trapping settings to the entire document, click OK. Then choose File > Save As, and save the document using a new name. Using the Save As command keeps the original PDF file intact.

• To specify different trapping settings for specific areas in a document, you must either

select and adjust the trapping specifications for the default page zones you want to change, or you must create new zones on each affected page.

4. For each document, you can adjust any ink's neutral density or ink type that is used by Adobe in-RIP Trapping to determine the precise placement of traps. In general, you should set the ink type of metallic or opaque spot colors to Opaque to ensure that these spot colors
- 
- This pop-up menu opens the Inks palette.
- Neutral Density settings can be modified in this window.
- 
- The New Style dialog box allows trapping Styles to be created.
- # Adobe Acrobat InProduction
- ## How to use Acrobat InProduction trapping features
- won't spread. Then ensure that inks are set to print in the proper order.

Pastel inks are normally lighter than their process equivalents. You may want to set the neutral density value for these inks lower than their default values to ensure that they spread into any adjacent darker colors.

5. Under New Style, make selections for Trap Width, Trap Threshold and Images can be set. These settings are similar to those found in Adobe InDesign, and they allow you to set Sliding Trap and Trap Images Internally (features not available in Adobe InDesign 1.5).

Setting Trap Styles is recommended for routine printing processes. These styles can produce consistent and reliable traps.

For more information on specifying trapping parameters, here, see the *Adobe Acrobat InProduction User Guide*.
- 
- Trap Widths are set in this window. Notice that black can have a different value than the other colors in a document.
- 
- Additional detail settings are made in this menu. Note that Sliding Trap can be set there.
- 32
- 33

# Adobe PageMaker

## How to use PageMaker trapping features

To use the in-RIP Trapping plug-in, copy it into the Adobe PageMaker plug-ins folder. After you install the plug-in, the in-RIP Trapping command appears in the Utilities > Plug-ins menu.

To download the latest version of this plug-in, go to Adobe's Web site at <http://www.adobe.com/support/downloads/main.html>.

### Trap styles

The in-RIP trapping plug-in lets you customize trapping settings and store groups of settings as *Trap Styles*.

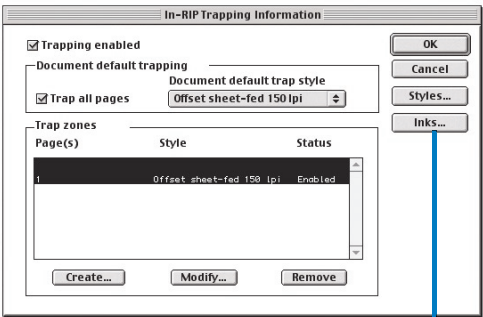
### Trap Style settings

The Styles dialog box lets you fine-tune the trapping settings for each style you create.

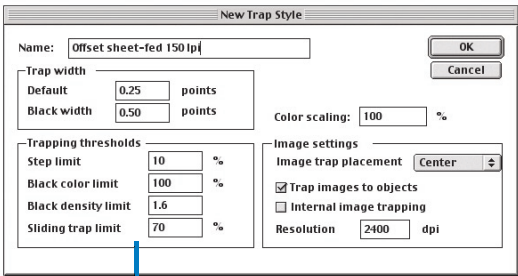
### Working with specialty inks

Certain inks require special trapping considerations. For example, if you use a transparent varnish on a publication, you want traps for colored items underneath as if no varnish were present. Alternately, if you overprint certain areas with a metallic ink (which is completely opaque), you don't need to create traps for items underneath.

The *in-RIP Trapping* plug-in gives you tools for handling these situations. In the *Inks* dialog box, choose *Modify* to reach the *Current Ink* dialog box where the color's characteristics can be modified for the trapping controls. It is in this dialog box that neutral density is set. A measured neutral density can be made with a densitometer on a sample of the actual ink, and then entered into this dialog, or you can use the Adobe PageMaker defaults, and modify the ink's neutral density to force the trapping algorithms to treat the color differently.



This pop-up menu opens the Styles and Inks dialog boxes (right). After set-up is complete, clicking OK enables trapping to occur at the time of printing. Note that the PageMaker in-RIP trap plug-in works with Adobe PostScript in-RIP systems.



Trapping settings are made in this dialog box, including trap thickness and black width, which can be different from the other colors in a publication.

# Adobe PageMaker

## How to use PageMaker trapping features

To get a color to behave as a subordinate color being spread into other colors, reduce the neutral density value. To make the ink behave as a dominant color, increase its neutral density to a value higher than the value of the ink you wish to see spread into this color.

Ink Type is another option in this dialog box. The choices for this option include the following:

- Choose *Normal* for traditional process inks and most spot inks.

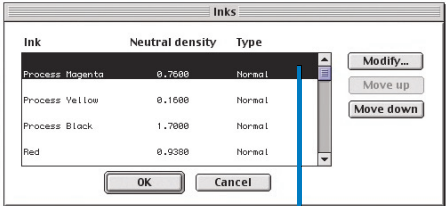
- Choose *Transparent* for varnishes and other clear inks to ensure trapping of underlying items. Use this option for varnishes and die line inks.

- Choose *Opaque* for heavy, non-transparent inks to prevent trapping of underlying colors but to allow trapping along the ink's edges. Use this option for metallic inks.

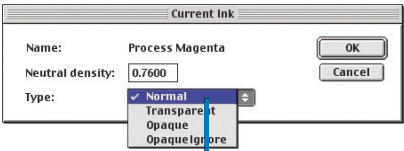
- Choose *Opaque Ignore* for heavy non-transparent inks to prevent trapping of underlying colors and

prevent trapping along the ink's edges. Use this option for inks that have undesirable interactions with other inks.

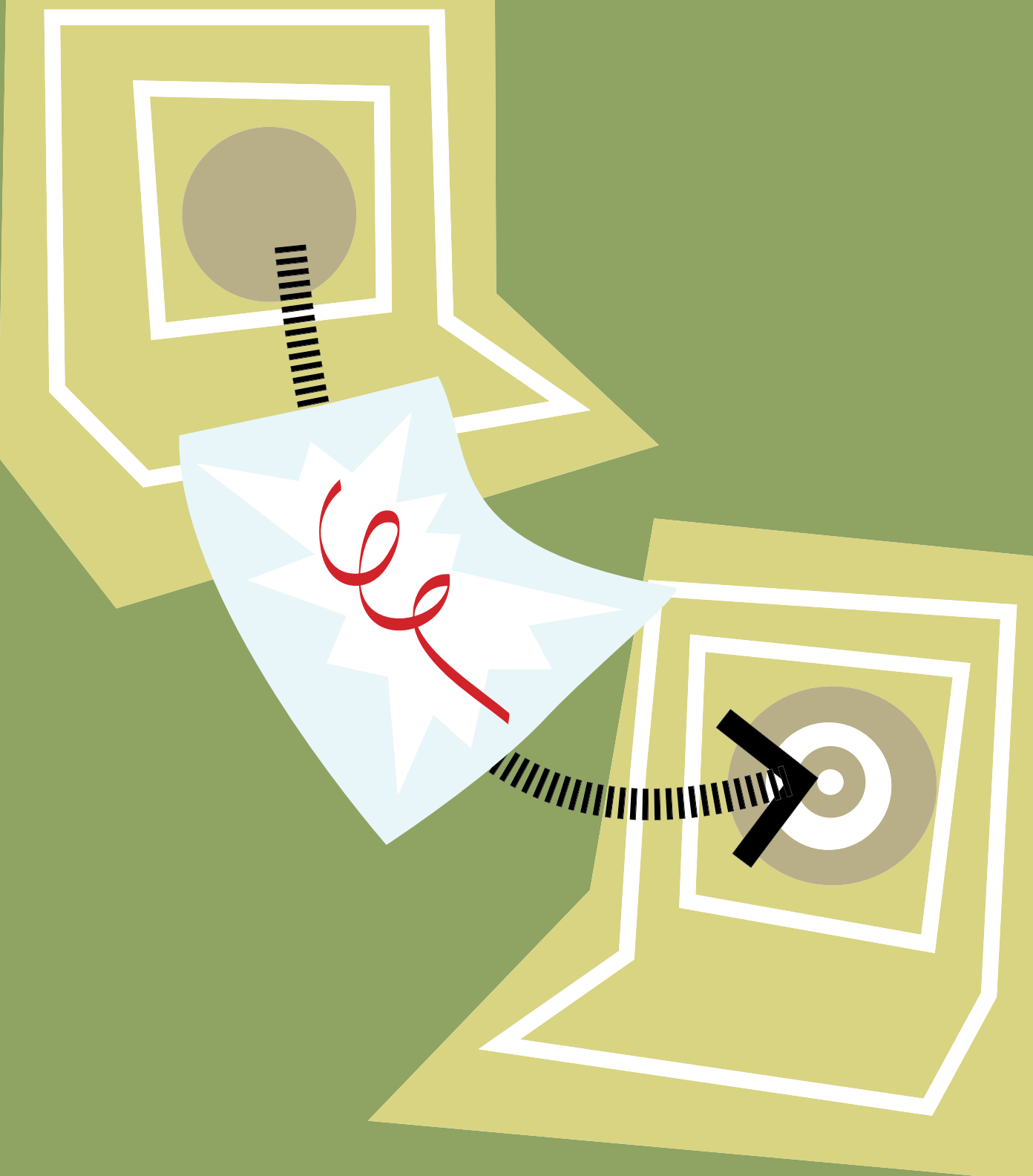
For more information on specifying trapping parameters using the Adobe in-RIP Trapping plug-in for PageMaker, see the *Adobe in-RIP Trapping User Guide*, a PDF file included with the Adobe in-RIP Trapping plug-in.



This dialog box describes the inks and their printing order. To change the order, select the ink color, and click the Move Down button. To change neutral density, click the Modify button.



The Current Ink dialog box lets you change an ink's neutral density and its type.



Adobe technology partners



# Where to find Adobe trapping technologies

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## Adobe Trapping technology partners

### **Agfa Corporation**

200 Ballardvale Street  
Wilmington, MA 01887 USA  
978-658-0200  
[www.agfa.com](http://www.agfa.com)

### **Dainippon Screen Mfg. Co., Ltd.**

Tenjinkita-cho 1-1, Teranouchi-agaru 4,  
Horikawa-dori, Kamigyo-ku  
Kyoto 602-8585, Japan  
81-75-414-7111  
[www.screen.co.jp](http://www.screen.co.jp)

### **FUJIFILM Electronics Imaging Ltd.**

Fujifilm House  
Boundary Way  
Hemel Hempstead  
Herts HP2 7RH  
United Kingdom  
+44-1442-213440  
[www.ffe.co.uk](http://www.ffe.co.uk)

### **Heidelberg**

1000 Gutenberg Drive  
P.O. Box 100003  
Kennesaw, GA 30144-9203 USA  
770-419-6657  
[www.heidelbergusa.com](http://www.heidelbergusa.com)

### **IPTech**

2925 McMillan Avenue, Suite 202  
San Luis Obispo, CA 93401 USA  
805-541-3000  
[www.iptech.com](http://www.iptech.com)

### **Monotype Systems Incorporated**

2100 Golf Road  
Rolling Meadows, IL 60008 USA  
847-427-8800  
[www.monoexpress.com](http://www.monoexpress.com)

### **RIPit Computer Corporation**

7920 Alta Sunrise Drive, Suite 250  
Citrus Heights, CA 95610 USA  
916-962-7050  
[www.ripit.com](http://www.ripit.com)