

ExecJet Options

Print Quality

Print Quality has to do with the appearance of the printed image. Choices are expressed as High, Medium, Low and Draft and combine resolution with hardware options to control such things as banding, amount of ink on the page and differences related to print media. Medium provides good speed/quality combination. High provides the best quality but takes longer to print

Color

Enable the Color checkbox for color printing; clear it for monochrome printing.

Media

There are five media types: Plain Paper, Transparency and Glossy. Both Transparency and Glossy also have an option to pause after printing to allow paper to dry. Make sure your selection matches the media loaded into the printer. Transparency film should be loaded into the printer with the print (rough) side down.

Compression

Speeds data transmission and reduces printing time by sending repetitive data faster to printers that support compression. May slow printing when printing non-repetitive data such as bitmaps. Turn Compression off if printer hangs or output is garbled.

Displays the Print Quality choice. Print Quality blends resolution with other printer features to produce high quality output.

Click this button to open the Custom Papers dialog.

Speeds data transmission and reduces printing time by sending repetitive data faster to printers that support compression. When printing non-repetitive data such as bitmaps, may slow printing. Turn Compression off if printer hangs or output is garbled.

Choose this check box for color output, clear it for black and white.

When selected, displays an information dialog box that shows progress of print job

Displays the media selection. Options are based on the qualities of various types of media. Your choice should match the media you have loaded into your printer.

Click on a specific item for more information. Controls may not be available for all models.

Click on a specific item for information. Controls may not be available for all models

Click on a specific item for information. Controls may not be available for all models.

SuperDriver Help

SuperHelp

SuperHelp is the Zenographics knowledge base that contains tips and tricks for working with applications, devices, and configurations. It also contains a list of Frequently Asked Questions, troubleshooting hints, and ways to contact Zenographics. You will find it in the Help tab.

Click this button to access SuperPrint online Help.

Click this button to access SuperHelp, the Zenographics knowledge base that contains tips and tricks for working with applications, devices, and configurations. It also contains a list of Frequently Asked Questions and helpful hints for troubleshooting.

Displays information for contacting Zenographics electronically.

SuperDriver Status

If you are interested in viewing the progress of a printing job, SuperPrint provides the SdStatus mini-application. It can be accessed by the **Status** icon in the SuperPrint group. You can also cause it to display by checking the **Show Status** box in the Processing tab.

The progress bars are allocated dynamically and can take on different labels during the course of a print job. Typically, you'll see status of things like sub-object counts, scanlines sent to the printer, and throughput rates. (A sub-object can be any of the attributes of an object, such as fill color, outline thickness, position, etc.)

For most printing, probably the most useful status indicator is **Scanline**. To the right, this status bar shows the total number of scanlines that will be sent to the printer for the current page. Both the number next to **Scanline** and the blue status bar show the progress of the page.

The **Setup** button opens the SuperDriver's printer properties dialog. This is a quick and easy alternative to going through the Windows 95 Printers folder or Windows NT Print Manager to change driver settings.

The **Print** button lets you load Windows spool jobs directly. These are jobs that have already been submitted by an application to Windows for printing. To intercept and save these .SPL files, you must print while the printer is paused, go into the Windows\Spool\Printers folder, and copy these files to another folder. Note: In Windows 95, the Spool folder is hidden. The best way to access it is using Windows Explorer; by default, it displays hidden items.

After copying them to another folder, you can rename spool files that were created with a SuperDriver and give them a .SMF extension, since they are really SuperMetafiles. This provides one method of sharing print jobs with other computers. (However, most users find PostScript files more convenient.) The **Print** button can only be used for spool files and SuperMetafiles, not for any of the other file types supported by SuperQueue filters.

The **Cancel** button stops a print job that was started by using the **Print** button. It does not stop jobs submitted in any other way.

If you click on the system icon or right-click on the title bar, the system menu appears. Toward the bottom of the menu is the **Change Printer** option. If you want to view the status of another printer, or if you want to submit a .SPL or .SMF file intended for another printer, you can change the printer here.

About

This tab brings up an informational page that includes the version number of your SuperDriver, the registered user and the Serial Number. You may need this information should you have to contact Zenographics for help.

Displays SuperDriver model, version numbers and copyright information.

Displays name of licensed user and SuperPrint serial number.

Halftoning Overview

The original halftoning process came from the traditional graphic arts. In that process, continuous-tone artwork is photographed through a glass screen that's etched with a cross-hatch pattern at a specific frequency (lines per inch). On the resulting film, the artwork is converted into a series of dots which vary in size according to the relative lightness of the original art. This conversion allows the shaded artwork to be reproduced on a printing press.

On a computer, halftoning (in some cases also called "dithering") refers to the patterns in which printer spots are placed on a page to form shades of gray (for laser and most dot-matrix printers) or colors (color ink-jet and thermal printers). These patterns have traditionally consisted of small cells in an orderly arrangement that mimicked traditional graphic arts halftoning.

Recent advances in computer and graphic arts technology have made it possible to break free of the orderly rows of dots and achieve interesting and useful special effects with "halftoning." SuperPrint incorporates the latest of these technologies to help you get the best output possible.

The **Halftoning** dialog has a single drop-down list box that contains the names of all the available halftone patterns. These patterns can be divided into two types: bitmap-based (also called threshold arrays) and algorithm-based. As you scroll through these names, three indicators give you information about the current choice:

- n A graphic representation of the output pattern appears in the upper left corner.
- n A description of the choice appears in the area below the list box.
- n A bitmap name and array size appear beside the representation. If no name or size appears, the current choice is algorithm based.

Threshold arrays

Threshold arrays are a close digital counterpart to the traditional graphic arts halftoning. A pattern, stored digitally in a BMP file (as opposed to a glass screen), is superimposed on the original digital image, producing different dot densities on the output.

Some threshold arrays are clustered dot patterns (for example, **3x3**, **4x4**, and **8x8** plus **Dispersed-dot dither**) while others produce a random screen appearance (**SuperScreens** 1 & 2, and the **White noise threshold array**).

Ordered patterns typically photocopy and fax well, but can exhibit artifacts like banding in gradient areas.

SuperScreens employ the latest FM (also called “scatter” or “stochastic”) screening for amazingly smooth looking output. They don’t photocopy very well, but if you want to produce a short run of dazzling originals, you should definitely try these!

The **White noise threshold array** produces output that still has a random dot look, but its coarser grain creates an interesting special effect.

One advantage to the threshold array concept is that because the patterns are BMP file based, new screen patterns can be created and added easily in the future.

Algorithm based dithering

There are two types of algorithm based dithering: ordered dithering and error diffusion. Please note that algorithm-based patterns are unaffected by the **Dot Gain** setting. In general, we recommend that you use the threshold array halftoning.

Ordered dither pattern

An ordered dither pattern arranges the cells at a constant angle in relation to one another, typically 45 or 90 degrees.

Error Diffusion

Floyd-Steinberg refers to the error-diffusion method of dithering that takes into account not only the color (or shade of gray) of the pixel being processed, but also the colors of surrounding pixels. **2-way** takes into account two neighboring pixels, **4-way** uses four. The net effect on the output is similar to **SuperScreens** in appearance, providing a smooth look to graphics.

Floyd-Steinberg uses eight times the amount of memory used by any of the other halftoning patterns (8-bit pixel depth vs. 1-bit). It can be useful for certain applications which impose their own dithering when printing to a 1-bit driver, but allow the driver to perform the halftoning when it reports that it is an 8-bit driver.

Dot Gain

Dot Gain is the result of the difference between your printer's addressable pixels (the dots-per-inch resolution claimed by the manufacturer) and its optical pixels (the actual spot size made by the marking engine).

In a laser printer, for example, the laser beam can accurately target 300 spots per inch on the toner drum, but in the toner transfer process, the size of a single spot of toner becomes larger than 1/300 inch. An ink-jet or dot-matrix printer can accurately position its print head to within 1/240, 1/300, or even 1/360 inch. However, many variables, especially the properties of the paper being used, may cause the spot of ink to spread considerably.

SuperDrivers have been given default settings for **Dot Gain** based on the printer model, the chosen **Resolution** and the chosen **Media Type** (for example, plain paper vs. coated paper or transparency). You should only adjust **Dot Gain** if it appears that your printer's marking engine is out of adjustment (that is, giving you consistently too dark or too light results across the entire color range). Setting **Dot Gain** higher will result in lighter output, setting it lower will give you darker output.

HINT: Try changing **Dot Gain** in 10% increments to start.

We've included a useful testing procedure for making dot gain adjustments. It consists of a test file for dot gain, and a Write file that explains how to use it. The instruction file is located on the CD ROM in \UTILS\COLORFIX.WRI.

Depletion

The **Depletion** setting is primarily for ink jet printers and provides a way to reduce the amount of ink that is put on the page with little or no effect on the appearance of the final output. If you find that your printer is laying down too much ink (for example, if the paper is getting wrinkled or the ink is soaking through to the back), you should increase the **Depletion** value.

Depletion works by looking for printer pixels that are surrounded by other pixels of the same color ink, then removing some of those pixels according to your setting. So, for example, in an area of solid yellow with a setting of 33% depletion, every third pixel in the solid yellow area would be removed. With uncoated papers, such a difference would be almost imperceptible; since the dot gain on these papers is rather high, the remaining pixels would blend together anyway. However, a third less ink would be placed onto the page, so the paper should not become as saturated.

Depending on the document content and media type, you might notice your graphics becoming "washed out" when you use high **Depletion** settings. You will have to find a balance between the look you want to achieve and the amount of ink your paper can absorb.

Shows representation of selected halftone pattern. Filename and size are displayed only for threshold arrays,

Displays the name of the selected halftone pattern.

Provides information about the selected halftone.

Compensates for the spread of ink or toner on the paper. Adjust **Dot Gain** if your printer's marking engine is out of adjustment, giving you consistently too dark or too light results across the entire color range. Set **Dot Gain** higher for lighter output; set it lower for darker output.

Primarily for inkjet printers, **Depletion** provides a way to reduce the amount of ink that is put on the page.

Image Overview

This feature has been implemented primarily to overcome hardware inadequacies or maladjustments. To some readers, some of the following may appear rather technical; to others, not technical enough. An attempt has been made to explain the function of these settings only to the extent that it makes informed experimentation possible.

- **Lightness**, **Contrast** and **Sharpness** apply to all devices.
- **Saturation** and **Hue Matching** apply only to color devices.

Input / Output

When your application prints, it sends color values for every object, pixel, or piece of text. The SuperDriver accepts that information and passes it through these imaging correction settings.

All these settings affect only the output. Absolutely no changes are made to your original files or your on-screen display. Also, these settings are remembered by SuperDriver from one session to the next, so if you find some settings you like, you can set them and forget them.

Settings in the **Image Correction** box are global settings—that is, they affect the entire image and all colors. Before you adjust these settings, you should have an idea of just what is wrong with your output.

Problem	Probable adjustment
Light and dark colors OK, mid-tones are too dark	Lightness
Output looks either too “flat” or too stark	Contrast
Colors either washed out or too vivid	Saturation
All color values (including what should be light tints) are too dark	Dot Gain

Lightness

- **Lightness** applies to all devices.

Lightness primarily affects the mid-range color or gray values of a graphic image. It does so in a non-linear fashion (that is, it does not affect every gray value equally).

Probably the best use for **Lightness** is to compensate for flaws in your original document or graphic. If, for example, your document contains a scanned image that's too light or too dark, you can compensate using **Lightness**.

If you have a 1-bit-per-pixel device and *all* your printing is coming out too light or too dark, consider manipulating the **Dot Gain** setting first. For continuous-tone devices, changing **Lightness** may be useful if your mid-tones are consistently too light or too dark.

HINT: Try changing **Lightness** in 10% increments to start.

Contrast

Contrast applies to all devices.

Contrast is similar to the contrast knob on your television. If the distinctions between neighboring objects are not clear enough, try increasing **Contrast**. Conversely, if your image appears too stark, you can decrease **Contrast** to soften it.

If you increase contrast, lighter colors may tend to vanish into white, and darker colors may merge with black. The remaining middle tones will spread out along the entire range of grays so that the distinction between them should increase. Increasing **Contrast** all the way (100%) removes the middle grays and maps every gray into either black or white.

Decreasing **Contrast**, on the other hand, flattens distinction between gray values—eventually, nearly everything becomes a 50% gray (at -100% contrast).

HINT: Try changing **Contrast** in 10% increments to start.

Sharpness

Sharpness applies to all devices.

Any time you print an image using halftoning (or dithering), a little of the sharpness or clarity is lost. This is primarily due to details being lost in the “cracks” between halftone dots. In traditional printing, when the highest quality results are needed, line screen frequencies are increased to 150 lines per inch or more. Unfortunately, on today’s desktop printers, this is not an option—trying to print very fine line screens would result in unacceptable dot gain and reduction of available gray levels.

SuperPrint includes a **Sharpness** filter that helps compensate for this. It is only useful with scanned photographs (natural images) that are either 24-bit color or 8-bit grayscale. A default **Sharpness** value has been supplied for your device; you can also change it if you want to. To change **Sharpness**:

- Enter a new value in the **Sharpness** box with the keyboard or by clicking on the scroll arrows.

Acceptable values are zero to 100, with zero representing no sharpening action. The effects of **Sharpness** will be noticeable primarily on the edges where areas of different lightness values converge. For example, on a photograph of a face, you would notice a greater definition of the irises against the “whites” of the eyes; details like eyelashes can also become more clear.

This **Sharpness** filter uses a process called “Unsharp Masking.” It masks out anything that’s not sharp by examining an image pixel-by-pixel, looking for adjoining areas which differ in lightness. Where it finds such areas, it exaggerates the contrast at the point where the areas meet—the lighter pixel is made even lighter, the dark one is made darker.

If you’ve set **Sharpness** too high, you might notice that formerly minor variations within certain image areas become starkly defined. This may produce an interesting special effect, but for most work, you’ll want to reduce **Sharpness** until such undesirable effects disappear.

Saturation

- **Saturation** applies only to color devices.

Saturation controls the intensity of color that's placed on the output page. It affects all hues equally. If output colors appear dull, increasing **Saturation** can make them more vibrant. Conversely, if colors are too intense, reducing **Saturation** will make them more subdued.

On ink-jet printers in particular, color intensity will be strongly affected by choice of paper; a typical laser paper or cotton bond will absorb ink, making colors dull, while a clay-coated paper will keep the inks on top of the paper itself, increasing their reflective properties. You can use **Saturation** to compensate for the properties of the paper you are using.

Hue Matching

Zenographics has made every effort to give you accurate color on your output device when you use the SuperDriver with its default settings. If, however, you would like to make changes to the individual color values of your output, you can use the **Hue Matching** selections to do this.

We've included a useful testing procedure for making adjustments. It consists of a test file for hue matching and a Write file that explains how to use it. The instruction file is located on the CD ROM in \UTILS\COLORFIX.WRI.

IMPORTANT! Adjusting these settings to other than the “factory” defaults can seriously affect output quality. Unless you have the time and resources to spend on significant trial-and-error experimentation, we suggest that you leave these settings alone! Also, since color balancing is, by its very nature, subjective, it is unlikely that our telephone support staff will be able to remedy any difficulties arising from its use. Remember that if your color correction experiments go awry, you can always click the **Restore Defaults** button in the **Hue Correction** dialog to return your settings to the factory defaults.

- First make sure that the **Enable Hue Matching** box is checked. **Hue Matching** settings are ignored if this box is clear.
- Click the **Adjust Hues** button.
- Choose the radio button next to the color you want to modify.

Note that changes you make to a particular color will not affect neighboring colors; if you want to make your blues more greenish, you can do so without affecting cyan or magenta.

There are four ways to modify your chosen color:

- Click inside the large, rainbow-hued box (the color matrix).
- Drag the arrow next to the vertical gradient box (the luminosity bar).
- Enter values in the **Hue**, **Sat**, and **Lum** boxes.
- Enter values in the **Red**, **Green**, and **Blue** boxes.

There is an interrelationship between **Hue**, **Saturation**, and **Luminosity** and **Red**, **Green**, and **Blue**. (To see this dynamically, just drag the cursor around in the **Color Matrix Box** or the **Luminosity Bar**. Click the **Cancel** button if you don't want your experiment to take effect.)

The Color Matrix Box

This box lets you graphically change the **Hue** and **Saturation**. The value in the **Hue** box is a numerical representation (from 0 to 239) of the color name (red, red-orange, orange, yellow-orange, yellow, etc.). The value in the **Saturation** box is a representation of the intensity of the color, from solid color (240) to absence of color (0), also known as gray.

The Luminosity Bar

This bar lets you graphically change the **Luminosity** of your color. The values range from 0 (black) to 240 (white). Using **Luminosity** could be helpful when you have, for example, a chart or other graphic element with clearly defined areas of color and you want to manipulate the lightness of just one color.

Red, Green, and Blue

While the **Hue**, **Saturation**, and **Luminosity** settings offer graphical representations to make your choices easier, it's the **Red**, **Green**, and **Blue** settings that really matter to Windows and SuperDriver. These settings are harder to manipulate manually, but if you choose to do so, you will be able to see the results on the **Printer** side of the **Printer/Screen** swatches.

Color manipulation results

If you have manipulated a color value, the resulting displayed color should be used only as an indication of how you have skewed that individual color. For example, if your yellows were coming out a little too green using the default settings, you could use **Hue Matching** to move yellow toward red (away from green). The color box in the **Printer** column would display an orange-ish yellow as an indication that you have shifted this color. The goal is to make your output match as closely as possible the color shown in the **Screen** column; the revised colors shown in the **Printer** column are not intended for screen matching.

Restore Defaults button

The **Restore Defaults** button instantly returns all color values to your driver's “factory defaults”. There is no confirmation box. If you click **Restore Defaults** in error, simply click **Cancel** from the **Hue Correction** dialog; this will undo all actions you have taken while in that dialog box.

The color model

A little bit of theory for those who are interested.

Internally, SuperDrivers use the Windows 24-bit RGB (Red, Green, Blue) color model to define all colors. These are the colors of the phosphors in your color monitor. When viewed on a monitor, they are considered **additive colors** because the colors are generated by adding light from one or more of these primary colors. Black is the absence of all light (R=G=B=0), and white is the presence of all light at maximum levels (R=G=B=255).

RGB values are used for output as well. Some output devices, such as film recorders, accept and use RGB values. Some devices, such as certain color thermal printers, accept RGB input and convert the colors to CMY or CMYK (Cyan, Magenta, Yellow, and Black) for output. Some printers require that the SuperDriver convert its RGB to CMY or CMYK before it's sent to the printer.

On printed output, C, M, Y, and K are referred to as **subtractive colors**. This name indicates that a colored area accepts white light, reflects only certain wavelengths, and subtracts all other wavelengths from the white light. In this case, white is the absence of all color (C=M=Y=K=0) and black can be either K=100% or C=Y=M=100%.

As you might expect, additive and subtractive colors work very differently when combined. For example, when you combine 100% values of two additive colors on your monitor, the resultant color is brighter. Combining 100% values of two printed colors results in a darker color.

Here are the relationships between 100% values of RGB and CMY:

Additive color	plus additive color	yields subtractive color
Red	Green	Yellow
Green	Blue	Cyan
Blue	Red	Magenta
Subtractive color	plus subtractive color	yields additive color
Cyan	Magenta	Blue
Magenta	Yellow	Red
Yellow	Cyan	Green

But remember what we said about combining colors: the cyan you get on screen from combining green and blue becomes brighter, while the blue you get on paper from combining cyan and magenta is darker. If you are using a SuperDriver for a color hardcopy device, you should find that the color correction we have built in compensates quite well for this situation. If you want to fine tune your colors, however, we have given you the tools to do it.

Click on a specific item for information.

Affects the mid-range color or gray values of a graphic image. If the black and white values in your output are all right but grays (especially those below 50%) are too dark, try changing Lightness in 10% increments.

Similar to contrast on television. If distinctions between objects are not clear, try increasing contrast in 10% increments; if image is too stark, decrease **Contrast** to soften it.

Controls the intensity of color that's placed on the output page. Affects all hues equally. If your output seems dull; increase **Saturation**. Decrease it if your colors are too intense.

Adds clarity to image areas in which more definition is needed. Works only with scanned photographs, 8-bit grayscale or 24-bit color. Enter new value or use scroll arrows to change values, which run from 0 (no sharpening) to 100.

When this box is checked, the changes made in **Hue Correction** (accessed by **Adjust Hues** button) are used.
When this box is cleared, **Hue Correction** changes are ignored.

Click this to open the **Color** dialog box where you can make changes to individual color values.

Paper Source and Paper Size

Your choice of printer model determines your available choices in these list boxes. All of the paper sizes, trays and bins supported by your printer model are shown. Use the scroll bars as needed to see additional choices. Where pertinent, additional information is available in printer-specific sections.

- Choose the appropriate paper source.
- Choose the paper size that you are using for output.

Orientation

This setting should correspond to the layout of your document.

- Choose **Portrait** or **Landscape**.

Restore Defaults button

The **Restore Defaults** button resets choices to the defaults for the your printer model. This button is used primarily to give you a new start when troubleshooting.

Caution: the **Restore Defaults** button does not give you any confirmation message before resetting your driver. Its action can only be undone by clicking **Cancel** to exit this dialog.

Lists paper sizes for the chosen printer model. Choose the size that matches the paper in your printer.

Lists paper sources for the chosen printer model. Different printer models support different paper sources such as automatic sheet feeder, upper tray, manual feed, etc.

Choose **Portrait** or **Landscape** to correspond to the layout of your document.

Choose **Portrait** or **Landscape** to correspond to the layout of your document.

Opens a dialog that allows you to save current settings as profiles.

Returns choices in all dialogs to the default settings.

Saved Settings

Saved Settings lets you save all current SuperDriver options (including settings for color correction, halftoning, media type, paper size and orientation) and retrieve them for future use. For example, if you have a color inkjet printer that you use for both word processing and graphics, you could save two named profiles:

- 1 Medium resolution, color off, plain paper, and standard quality could be grouped as *Word Processing*.
- 2 High resolution, color on, coated paper, and high quality could be saved as *Graphics*.

Switching choices under **Saved Settings** restores all these features with one function.

To save a setting:

- n Choose the options you want to use from the various SuperPrint tabs (remember, everything is saved in the profile).
- n Click the **Saved Settings** button in the **Paper** tab.

Current Settings appears in the list box when none of the saved settings exactly matches the current selections. If a named setting appears, that means you've already saved this configuration; you do not need to save it again.

- n Click the **Save As** button.
- n In the dialog that opens, give your profile a name.

If you want to apply the current settings to an existing name, choose your name from the **Saved Profiles** list. You will be asked to confirm the replacement when you choose OK to exit the dialog.

- n Click **OK**.

Your named profile appears in the list box. The **Save As** button is no longer active because the actual settings and the named profile are the same.

Choose a saved setting (profile) from this listbox. If no profiles have been saved for the current settings, the listbox displays **Current Settings**.

Opens the **Save Profile** dialog so you can save current settings as a named profile.

Allows you to remove a saved setting.

Closes this dialog and saves any changes you have made.

Closes this dialog box without saving any changes you have made.

Type in a profile name.

Lists the existing profiles.

Closes this dialog and saves any changes you have made.

Closes this dialog box without saving any changes you have made.

SuperRIP

The top half of the SuperRIP dialog is informational. In **Current image size**, you are given the image size for the current resolution settings. Also shown is the “pixel depth”—that is, how many bits are used for each pixel.

For **Image memory required**, the numbers in **Current image size** are multiplied. The result is reduced to Kilobytes (expressed in the chart on the following page as Megabytes).

The **Available Windows memory (virtual)** line reflects a combination of free physical RAM and available virtual swap file space. By default, SuperRIP does not make use of the virtual swap file. It normally uses only physical RAM. The next line, **Unused physical memory**, shows how much actual RAM is available for SuperRIP's use. This number represents system RAM less everything currently in memory (system drivers, Windows, and currently running applications).

How SuperRIP allocates memory

The next section of the dialog lets you control how SuperRIP uses available memory. The amount of memory SuperRIP will use is shown in the **Maximum SuperRIP allocation** box. By default, **Automatic memory management** is turned **on**, so the number in the allocation box is pre-determined. This number is never larger than the one in **Image memory required**. In a system that does not have full-frame memory available, SuperRIP allows itself to take one-eighth of the free RAM at print time. The actual number can only be estimated; the memory available at print time will determine memory consumption and performance.

Changing memory allocation

There are a couple of reasons why you might want to change the automatic allocation. If the automatic allocation is just shy of full frame (the **Image memory required** figure), you could increase it. If you want to allow more memory for processing very complex graphics or for other applications, you could decrease it. To instruct SuperRIP to use a different amount of memory than the default:

- Clear the **Automatic memory management** box.
- Enter a new figure in **Maximum SuperRIP allocation**.

We urge you not to be too aggressive in changing this memory value. This new number cannot be lower than 64KB, and it rounds up to the nearest 64KB. Under normal circumstances, it should not be higher than **Unused physical memory**. In fact, it's usually best to leave some **Unused physical memory** free so Windows can access DLLs and other program modules without excessive swap file activity.

Note that available Windows memory can be increased by closing unused applications. To see the effect of closing an application, click on the **Retry** button.

Other controls

Once you have either changed **Maximum SuperRIP allocation** or closed another Windows application, you can force SuperRIP to re-evaluate your memory status by clicking on the **Retry** button. All numbers will be updated, as well as the information in the **Expected Printing Performance** box. This box displays either a green, “go” indicator (indicating **GOOD** performance with a full frame buffer) or a yellow “caution” indicator (indicating **FAIR** performance using buffering and banding). **FAIR** merely indicates that two or more bands will be used to send the file to the printer (up to a total of 64).

A red “stop” indicator is a signal that not enough memory has been made available for SuperRIP; you should close other applications or upgrade your computer.

Shows image size in pixels for either the currently selected paper size (for printers) or the current resolution setting (for film recorders or bitmaps). Also shows how many bits are used for each pixel ("pixel depth").

Shows how much RAM is required for full frame rasterization. The number is the result of multiplying the three numbers in Current image size and reducing the result to Kilobytes.

Shows all Windows memory. Includes virtual swap file (if one exists).

Shows how much actual RAM is available for SuperRIP's use. Under most circumstances, SuperRIP uses only physical RAM (not the Windows swap file). The number reflects your system RAM less everything currently in memory (system drivers, Windows, and any currently running applications).

The amount of memory SuperPrint will use. When **Automatic memory management** is *on*, numbers are estimates only; the actual memory available at print time governs memory consumption and performance. To force a particular value, turn **Automatic memory management** *off* and enter a new number.

The amount of memory SuperPrint will use. When Automatic memory management is on, numbers are estimates only; the actual memory available at print time governs memory consumption and performance. To force a particular value, turn Automatic memory management off and enter a new number.

When selected, automatically predetermines the number in the **Maximum SuperRIP allocation** box. As long as this feature is on, **SuperRIP** will automatically respond to any changes in the system's memory use.

Choose the **Retry** button to tell SuperRIP to re-evaluate your memory status. All numbers will be updated including the information in **Expected Printing Performance** box

This box displays either as green (indicating GOOD performance with full frame rasterization) or as yellow (indicating FAIR performance using a buffering and banding process). A red indicator shows that not enough memory has been made available for SuperRIP. In this case, you should close other applications or upgrade your computer's memory.

Windows/SuperDriver Interface

Some applications do not recognize the inherent color-handling capabilities of SuperDrivers. It is for these applications that the option **Report 1 bit/pixel, 1 plane as device bitmap** exists. One application that requires this setting to be **on** is Microsoft PowerPoint. If you find that you are not getting correct color output from an application, you should try toggling this option.

Microsoft's specifications for communicating to Windows printer drivers are sufficiently "loose" that different software developers have invented (or borrowed) special driver "escapes" (unusual instruction codes). The set of escapes invented by Micrografx can provide substantial performance gains. Applications that either require or work better with **Enable `Micrografx' escapes (Path, ExtCaps, ...)** turned **on** include Lotus Freelance for Windows and all Micrografx software. In general, if performance when rendering complex graphics is either very slow, or yields unsatisfactory output, you should try toggling this setting.

Color Tricks

Most output devices rely on dithering to achieve shades of gray or light colors. With the **Show accurate...** options *on* (the default), SuperDriver gives you accurate grays or colors even if it has to dither them. You get exactly what you ask for.

However, small dithered text is difficult to read. Likewise, fine dithered lines appear dashed instead of solid. With the **Show accurate...** options *off*, SuperDriver maps text and lines to the nearest solid color. For black & white devices, grays darker than about 50% map to black; lighter grays map to white. For color devices, colors map to the nearest solid ink. For example, an orange line (which would be solid yellow and dithered magenta) will come out solid yellow.

Note: This option has no effect on continuous-tone devices such as film recorders.

Application Fill Patterns

When an application sends a bitmap fill pattern (also called a “pattern brush”) to the printer, the expected, standard size is 8 pixels square. Some applications are able to send larger patterns. If **Accept patterns larger than 8x8 pixels** is **on**, and you encounter output where your bitmap fills have repeating pattern anomalies in them, try turning it **off**.

Bitmap fill patterns can be used for any repeated design, or even to simulate grayscale dithering. Some applications send box tints as bitmap patterns. One problem that arises with this is that some programs don't make allowances for the difference between screen resolution and printer resolution. (Another problem is that some do!) The typical result is that patterns printed to a LaserJet get very small, and tints get too dark.

SuperDriver has a process that automatically enlarges the bitmap fill patterns so that the output more closely matches the screen. For example, with the default, “automatic” setting of **Pattern Scale: 0**, patterns that come from a VGA system (96x96 logical pixels per inch) are enlarged three times to (almost) match the 300x300 dpi of a laser printer.

If you set **Pattern Scale** to 1, that tells SuperDriver to handle the brush patterns exactly as they come from the application—no scaling. You can also force SuperDriver to scale by 2, 3, 4, or more times by entering larger numbers.

Font Engines

The primary use of this feature is for troubleshooting (by a process of elimination) the current SuperDriver with a limited number of applications. If your printing works OK, you should ignore these settings.

In some circumstances, certain applications can cause problems with SuperDrivers when the document uses typefaces installed in Adobe Type Manager software (ATM) or TrueType. (To check if your favorite applications are among these, please refer to SuperHelp.) If you have both font engines, you could also run into substitution problems.

The **Adobe Type Manager** checkbox accesses a “back door” to ATM. Turning this option *on* uses this back door to speed up handling of Type 1 PostScript fonts by handling them as text. With this option turned *off*, fonts are handled as graphics.

Note: ATM is not supported by Adobe in the Win32s programming specification in Windows 3.1, so the Tricks checkbox is defaulted **off**. It should never be turned on.

Turning the **TrueType** checkbox on speeds up handling of True Type fonts by sending them as text. With this option off, fonts are handled as graphics. This can be useful if you are printing over a network to a server that does not have the same typeface you are using on your workstation PC. Since the data is sent as graphics, you do not run into font substitution problems.

If you are printing with characters found in languages like Japanese or Chinese (also called double-byte characters), the **True Type** checkbox should be off.

Click on a specific item for information.

A trick for applications that do not recognize color-handling capabilities of SuperDrivers. If color output is incorrect, toggle this setting.

Enables special instructions developed by Micrografx to improve performance. If performance is slow or output unsatisfactory, toggle this setting.

These settings apply to devices that use dithering to achieve grays or colors. When on, **Show accurate** gives you accurate grays or colors even if it has to use dithering. When off, colors map to the nearest solid color. Continuous tone devices (24-bit color) ignore this option.

These settings apply to devices that use dithering to achieve grays or colors. When on, **Show accurate** gives you accurate grays or colors even if it has to use dithering. When off, colors map to the nearest solid color. Continuous tone devices (24-bit color) ignore this option.

For use with applications that send bitmap fill patterns larger than the standard 8x8 pixels. If you see problems with repeating patterns, toggle this setting.

Lets you select bitmap patterns that match the screen. When set to 1, SuperDriver will handle the patterns exactly as they come from application. To scale patterns 2, 3, 4 or more time larger, use larger numbers. The default of zero automatically scales patterns based on your printer's resolution.

Use when troubleshooting font problems. Turning TrueType on speeds up handling of fonts by sending them as text. With TrueType off, fonts are handled as graphics.

Use when troubleshooting font problems. Turning ATM on speeds up handling of fonts by sending them as text. With ATM off, fonts are handled as graphics.

Automatic job submission path

The SuperQueue print processor automatically attempts to print any file that arrives in the directory specified in "Automatic job submission path". Only SuperMetafiles or other file types supported by one of the SuperQueue filters should be placed here. Files are automatically erased from this directory after printing, so if you want to preserve a file, you should put only a copy in this directory. If you have more than one Windows printer that uses a SuperDriver on your system, you can specify a different directory for each printer.

When you've shared a printer on a network, this box shows the "ZSpool" directory being used by SuperQueue's network printing architecture; spool jobs coming across the network are automatically placed in the specified directory. This directory cannot be changed from the Processing tab.

The Processing tab is available in SuperQueue Printer/Properties/Details/Setup. It is also accessible from Windows 95 Printers folder and Windows NT Print Manager.

Show Status

When this option is selected, the SuperDriver Status dialog will become available when you print. This dialog shows the progress of the print job. The first time it is called, it will display as an icon. Thereafter, it will remember its last setting: open or closed.

The Processing tab is available in SuperQueue Printer/Properties/Details/Setup. It is also accessible from Windows 95 Printers folder and Windows NT Print Manager.

SuperMetafiles and data files supported by SuperQueue filters are automatically printed when placed in the directory specified here.

When selected, causes the SuperDriver Status dialog to display when you print.

Custom Papers

The **Custom Papers** dialog lets you define new papers and remove papers that you have created. The **Custom Papers** feature can come in handy when:

- n You have an unusual paper size installed in your printer and want to make sure the driver reports the correct dimensions to your printing application.
- n Your application bases its document size on the chosen paper and you want to create a custom sized document.

How to create a new Paper Size

- n Click the **New** button and type a new name in the **Name** box.
- n Change **Units** as needed.
- n Use the scroll arrows next to the **Width** and **Height** boxes to get to the desired numbers, or enter the numbers in the **Width** and **Height** boxes with the keyboard.

Note that the numbers you enter are expressed in hundredths of an inch or hundredths of a centimeter. So, for example, if you wanted to define a dimension of 5½ inches, you would enter *550*. A dimension of 5.50 inches would be shown in the list under **Paper Size**.

You must define the page using portrait dimensions; the dialog will not allow you to enter a width greater than the height. If you need to print landscape, simply set **Landscape** on the **Paper** page. Also, you will not be allowed to enter dimensions that exceed your printer's hardware capabilities.

- n To activate changes and continue, click on **Apply**. To activate changes and exit, choose **OK**.

Your new custom paper will be added to the **Paper Name** list and will be displayed in the **Paper Size** list box on the **Paper** page.

Note: the **Cancel** button will not undo any changes that have been saved with the **Apply** button. You can delete your custom papers with the **Remove** button as explained in the next section.

If your custom paper listing does not appear in your application's paper size list box (which happens sometimes because of restrictions in Windows' "common dialog" functions), use Control Panel to access your SuperDriver and choose your paper there.

How to remove a Paper Size

If you've defined a custom paper that you no longer want, you can remove its listing.

- n Choose the correct name in the **Paper Name** list.
- n Click on the **Remove** button.

The chosen **Paper Name** is removed and the next name in the list becomes the current one.

Display area shows the paper names and sizes for custom papers you create.

Display area shows the paper names and sizes for custom papers you create.

Click this to activate the controls necessary to create a new paper.

Click this to remove a selected paper.

Provides a place to enter a paper name after you click New. Names may not exceed 63 characters.

Enter a width value or use the spin buttons. Width may not exceed Height. If you enter a number too large, the value returns to the allowable maximum when you click Apply. To get the greatest Width value, increase Height to its maximum before setting the Width.

Enter a height value or use the spin buttons. If the value you enter is beyond the extent supported by the printer, the value is ignored.

Choose the measurement system you want to use.

Closes this dialog box and saves any changes you have made.

Closes this dialog box without saving any changes you have made.

Saves all the changes you have made without closing this dialog box.

Click this to display detailed Help information. For Help on any item, point to the item and click the right mouse button

Gray component replacement (GCR)

This option offers a control for replacing grays composed from Cyan, Magenta and Yellow with black ink as described below. It is not applicable to all printers and applies only when using CMYK halftone patterns. In printers where GCR is available, if there are ribbon choices (3-color, 4-color), it will only appear when a 4-color ribbon is selected.

Windows' internal color model is RGB (Red, Green, Blue). Color printers use CMY or CMYK (Cyan, Magenta, Yellow, Black) inks. The GCR setting applies only to printers for which the SuperDriver translates RGB to CMYK before sending the information to the printer. Note that some printers accept only RGB data from the driver and do their own RGB-to-CMYK conversion; the GCR setting does not apply to these printers.

There is a direct mathematical relationship between RGB and CMY; theoretically, all colors that can be expressed as RGB can be printed using only CMY inks. However, in practice, rendering dark colors using only CMY would require too much ink to be applied to the page (for example, black would require a solid area of all three inks, which would equal 300% coverage). To avoid this, [black ink is substituted](#) for areas in which all three inks are present.

When all three CMY values are equal, replacement is easy; equal values represent gray, so C=M=Y=50% would become K=50%. When the values are not equal, darker colors are created by extracting a gray component from the combined CMY inks. In the simplest method, the value of the lightest ink is subtracted from all three inks and is then replaced with a corresponding amount of black. For example, a dark orange might be comprised of C=25%, M=75%, and Y=100%. The smallest value (25%) is subtracted from all the values and is then assigned to K, so the result with the gray component extracted is C=0%, M=50%, Y=75%, and K=25%. This method is the SuperDriver default (Gray Component Replacement = 100%).

One drawback to this approach is that dark colors can lose saturation; that is, as a blue gets darker, it becomes more gray and less blue. This is where the SuperDriver Gray Component Replacement control can help. With GCR set to 80%, for example, 20% less black replacement takes place, and 20% more CMY inks are used instead to make colors darker. This can enhance saturation.

Reducing GCR also affects pure grays; mid-tone grays can appear "polychromatic" depending on the current halftone option.

Black Generation

Black Generation affects the amount of black ink that's actually applied to the page after **Gray Component Replacement** takes place. Reducing the **Black Generation** value reduces the amount of black ink used in darker colors without affecting the CMY values. The overall effect is to lighten the darker parts of an image. You may also notice a reduction in the apparent contrast; black ink is very important in establishing contrast in scanned images, so use this control carefully!

Affects the amount of black ink applied to page after Gray component replacement takes place.

Provides a control for replacing grays created with Cyan, Magenta and Yellow with black ink on the page.

