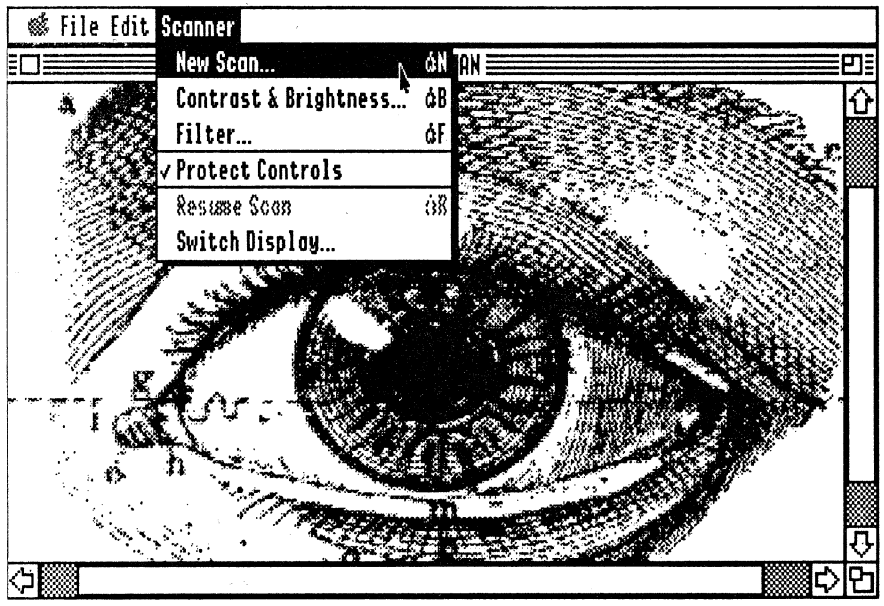
ThunderScan® GS



Software Guide

Thunderware®

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608-0514

ThunderScan GS Software Guide

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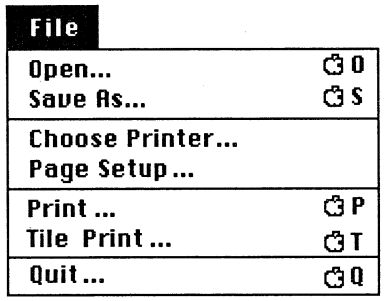

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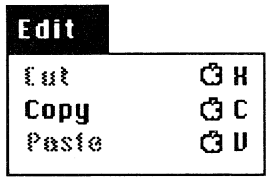

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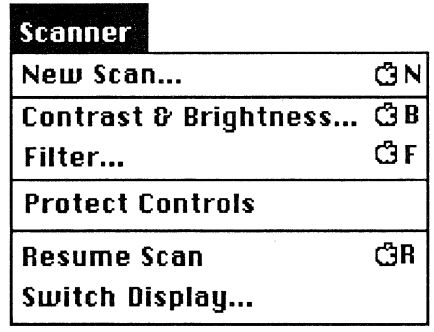

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Chapter One

INSTALLING THUNDERSCAN GS

How To Use This Guide

This guide assumes that you are familiar with the Apple IIGS. You should know how to use the mouse, open applications and documents, select pathnames and directories and use the Finder. For more information, please refer to your *Apple IIGS Owner's Guide.*

Before using this manual, you should first read the Introduction and Chapter One of the *ThunderScan User's Guide.* This will help you install your scanner and prepare your printer for scanning. The section *Configuring ThunderScan for Your Printer* does not apply to the ThunderScan GS software.

After you've installed the ThunderScan scanning cartridge, prepared your printer and inserted the tutorial image, you'll be ready to read this manual.

To use ThunderScan GS:

- Chapter One of this guide explains how to set up and configure the ThunderScan GS software.
- Chapter Two, *Learning ThunderScan GS,* gives you all the information you'll need for using the scanner and software.
- Chapter Three, *Playing with ThunderScan GS,* contains everything you'll need to manipulate and print your images.
- Also, if you want to learn more about getting the best results from your scanner or if you are having problems, you'll want to read Chapter Four, *Reference,* of the *ThunderScan User's Guide* for more details.

About ThunderScan GS

The ThunderScan GS software has been created specifically for use on the Apple IIGS with at least 512K of memory. You can use your mouse to access menus, select scan areas, change contrast and brightness, create negatives and colorize images with up to sixteen different colors. You can print scanned images with an ImageWriter® or LaserWriter®. Images can be saved in a variety of formats and changed later in programs like: AppleWorks™ GS, DeluxePaint™ II, Paintworks™ Plus and Paintworks Gold.

Using Scan Files from Other Versions of ThunderScan

Other versions of ThunderScan were designed for the Apple IIe and IIc, as well as the IIGS. The IIe and IIc use a different display format from the Apple IIGS. ThunderScan GS will load all ThunderScan files, but some information will be changed in the process. Specifically, you may need to use the **Filter** to adjust the colors or gray shades. The filter is described in *Using the Filter* in Chapter Three. You may also notice a slight difference in using files created with other versions while scrolling horizontally. This is because some of the screen formats available on the IIe and IIc are of different widths (aspect ratios) than the ThunderScan GS screen. If you plan to continue using another version of ThunderScan software you should create a separate ThunderScan image file for ThunderScan GS using the system finder's **duplicate** function.

Making a Backup Copy

Before scanning, you'll want to use a utility program to make a backup copy of the ThunderScan program disk. Use the backup copy of the software when setting up your system and store the original in a safe place.

Setting Up Your System

The ThunderScan GS application comes on a disk ready to use, but you may want to move files around and use your own system files to customize it for the equipment you have. ThunderScan GS saves images directly to disk during scanning. If you have a large amount of disk space available you will be able to scan larger areas and at higher resolutions.

Deciding between GS/OS and ProDOS 16

If you have 768K or more of memory, you should use GS/OS version 4.0 or greater. GS/OS is much faster than ProDOS 16. GS/OS is not included on the ThunderScan disk, but is available from your local authorized Apple dealer. If you only have 512K of memory, you'll have to use ProDOS 16.

Configuring ThunderScan GS with GS/OS

The disk included in this package does not include the GS/OS system files. Consequently, you will have to create a GS/OS startup disk to use with ThunderScan GS. To create a GS/OS startup disk with ThunderScan GS:

1) Boot your Apple IIGS using a copy of the GS/OS system disk.
2) Use the Installer to add any other system files that you may need.
3) Insert the backup copy of the ThunderScan program disk.
4) Make a new folder on the copy of the GS/OS system disk.
5) Copy all the files from the folder THUNDERSCAN.GS into the new folder.

Important Note: *It is important to keep ThunderScan GS files in the same folder (directory). If one file is missing or in another directory, the ThunderScan GS will not operate properly.*

If you're using ThunderScan GS with GS/OS and a hard drive, follow steps 3 through 5 above, copying files to the new folder on your hard drive.

Configuring ThunderScan GS with ProDOS 16

The disk included in this package comes ready to use with ProDOS 16. To create more disk space for images, you may wish to use a separate boot disk:

- Use any disk utility program to delete the files: PRODOS and the THUNDERSCAN folder, from a backup copy of the ThunderScan program disk.
- Rename the file PRODOS.GS – "PRODOS."

If you're using ThunderScan GS with ProDOS 16 and a hard drive you'll want to follow steps 3 through 5 in the section above, *Using ThunderScan GS with GS/OS* , copying the files to your hard drive.

Chapter Two

LEARNING THUNDERSCAN GS

Take a moment to familiarize yourself with Chapter One, *Installing ThunderScan*, in the *ThunderScan User's Guide*. At this point you should have your scanner properly installed and your printer prepared for scanning.

Inserting an Original

For purposes of learning, you'll want to put the tutorial image (the picture of the train) supplied with the ThunderScan package into your ImageWriter. To insert an original:

- Turn your printer *off* and remove all paper.
- Set the release lever to the *friction feed* position and roll in the tutorial image (Insert the original so that it is facing toward you when you roll it through the printer).
- After the original is in the printer, set the release lever to the *pin feed* position.
- Align the left edge of the original with the platen (the platen is the big roller that the paper goes around).
- Set the release lever to the friction feed position.
- If you have an ImageWriter I or Wide-carriage ImageWriter, move the paper bail (sometimes called the roller shaft) toward you, away from the platen.
- If you have an ImageWriter II, push the paper thickness lever all the way down (allowing for maximum paper thickness).
- If you have an ImageWriter I or Wide-carriage ImageWriter, push the paper bail back against the platen.

Now that your original is in the printer, you're ready to scan.

Launching ThunderScan GS

Before launching ThunderScan GS, be sure that you're using a copy of the software (not the original disk). Also, make sure **Printer Buffering** is disabled in the **IIgs Control Panel**. ThunderScan will not operate properly with printer buffering. ThunderScan GS is the startup application, so it will automatically load when you boot your computer. If you're using a hard drive, launch ThunderScan GS just as you would any other program.

The screen will look like this:

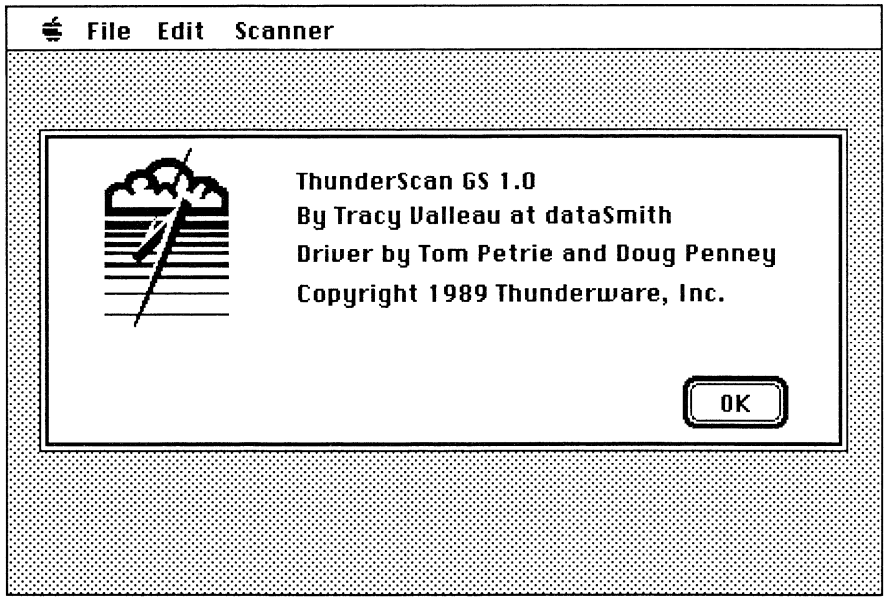

Figure 2-1: The ThunderScan GS window.

Click on the **OK** button (or press Return) to proceed.

Important note: If you experience problems while running the ThunderScan GS software, *do not* re-boot your computer while disk access is occurring. Doing so can damage the disk or directory being used. Wait until disk activity has stopped, then eject all disks (if you're using floppy disk drives) and re-boot your computer.

Configuring the Software

To configure the software for your printer and start a new scan, select **New Scan** from the **Scanner** menu (or press ⌘- N). The scan screen appears:

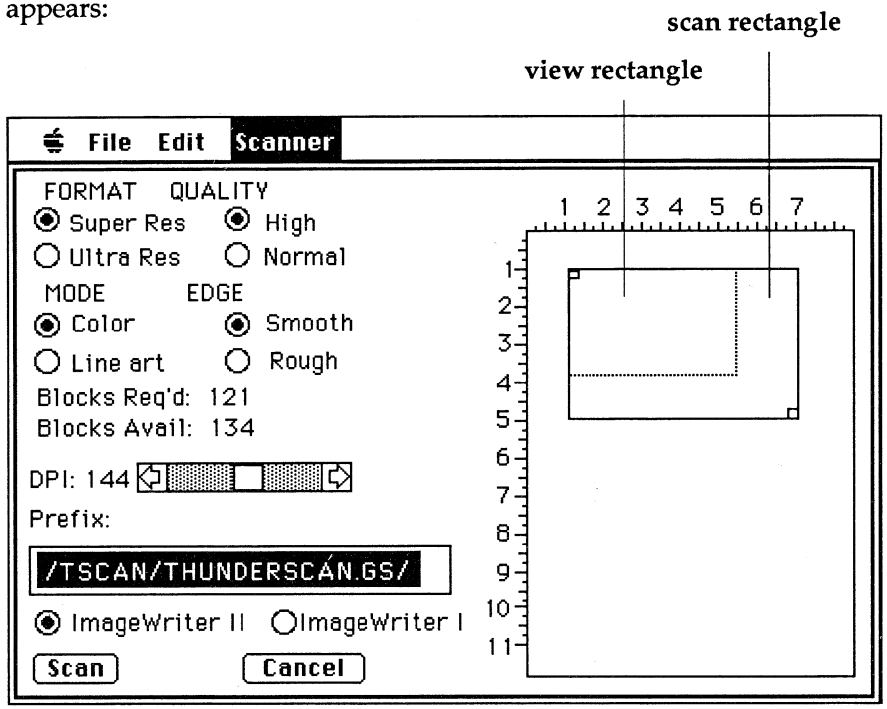

Figure 2-2: The scan screen.

The settings shown in the figure above are standard, but can be changed depending on your original, the file format you want to create and the type of printer you have. All of the settings are saved automatically when you quit the program. The rest of this section explains how each option works.

Format

ThunderScan GS allows you to scan in both the **Super Res** and **Ultra Res** formats. The super res format displays scanned images in 16 levels of gray scale or colors. The ultra res format displays scanned images in only 4 levels of gray, but has twice the horizontal resolution of super res. For purposes of learning ThunderScan GS, use the **Ultra Res** format. That's because the tutorial image is line art: all black and white with no grays or colors.

Quality

There are two choices for scan quality: **Normal** and **High**. Normal quality provides a standard quality scan image. High quality gives a slightly higher quality image, but scanning takes longer. For purposes of learning ThunderScan GS, select **High**.

Mode

The **Mode** determines how an image will appear on the screen. Depending on the format setting, you can choose from two modes: **Color** and **Line art**. The color mode is best for scanning continuous tone originals like photographs. The line art mode displays images in high contrast–all black and white with no grays. Lighter shades of gray become white and darker shades of gray become black. The line art mode is only available in the ultra res format. For scanning the tutorial image included in this package, select **Line art**.

Edge

The edge setting refers to the quality of the left edge of the original being scanned. The **Smooth** option should be used when scanning originals that have clean, straight white left margins of at least 1/4-inch along the area to be scanned. The smooth option increases scanning speed. If your original does not have a clean, white left margin of at least 1/4-inch or if it is printed on colored paper, you should use the **Rough** option. For scanning the tutorial image, choose the **Smooth** option.

DPI (Resolution)

Magnification is measured in dots per inch (DPI), as shown on the DPI scroll bar. DPI refers to the number of dots in each horizontal line used to represent an inch of the original. A DPI of 100 means that 100 dots on the screen represent one inch of the image being scanned. ThunderScan GS allows you to select up to a maximum resolution of 350 DPI down to a minimum of 36 DPI.

DPI is adjusted in three ways:

- Clicking on the arrows of the scroll bar.
- Moving the scroll box along the scroll bar.
- Clicking on the gray area of the scroll bar.

As DPI changes, so does the amount of **Blocks Req'd** for ThunderScan GS to save the scan file. As DPI increases, the scan file becomes larger and more blocks are required to store the scan file. The blocks required should be less than the **Blocks Avail.**

To scan at original size in the super res format, set the DPI to 40. To scan at original size in the ultra res format, set the DPI to 80. For purposes of learning ThunderScan GS, select **125 DPI.**

Prefix Selection

ThunderScan GS saves scanned images on disk during scanning. The **Prefix Selection** allows you to save images to different volumes or directories. If you are not sure of a the pathname, a blank prefix selection will save the image to the directory where the ThunderScan GS application resides. To change the prefix selection:

- Use the mouse to select the pathname in the prefix selection box.
- Type in the pathname of the directory that you want to save the image to, (or leave the prefix selection blank to save to the directory that contains ThunderScan GS).
- Click on the words **"Blocks Avail."** to view the disk space available for scanning.

Printer Selection

ThunderScan works with the ImageWriter I, Wide-carriage ImageWriter and ImageWriter II. If you are using a Wide-carriage ImageWriter, you should select **ImageWriter I.** Clicking on the appropriate button tells ThunderScan which printer to expect. ThunderScan can scan a maximum of a 7-3/4 X 11 inch area regardless of which ImageWriter you are using.

Selecting an Area to Scan

The page on the right side of the new scan screen is called the **page map**. The page map represents the original in the printer. The black rectangle inside the page map is called the **scan rectangle**. The scan rectangle tells ThunderScan where to start and stop scanning. To change the size of the scan rectangle:

- Using the mouse, move the pointer to the lower right handle in the corner of the scan rectangle.
- Hold down the mouse button and move the mouse to reduce or enlarge the rectangle's size.

To move the scan rectangle:

- Using the mouse, position the pointer on the upper left tab of the scan rectangle.
- Hold down the mouse button and use the mouse to move the scan rectangle about the page map.

The rulers on the page map show the area selected in inches. The green rectangle, the **view rectangle**, shows how much of the scanned image can be seen on the screen. This feature can be very helpful for creating a screen-sized image for use in a painting program.

For the tutorial image, select an area that is approximately 6 inches wide and 4 inches tall as shown in Figure 2-3.

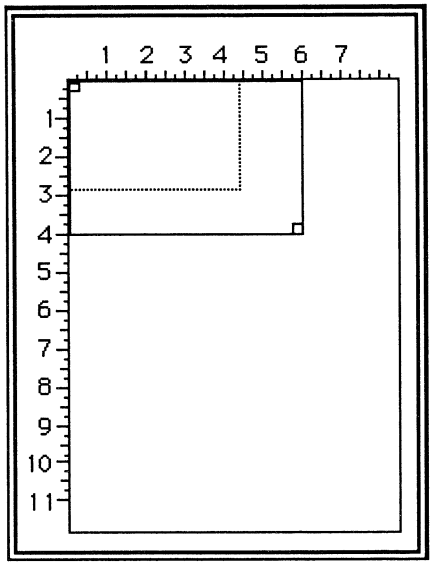

Figure 2-3: Proper position and size for area to be scanned.

Focusing the Scanner

Once you have selected and positioned the scan rectangle, be sure your printer is off. Click on the **Scan** button. A dialog box appears with focusing instructions.

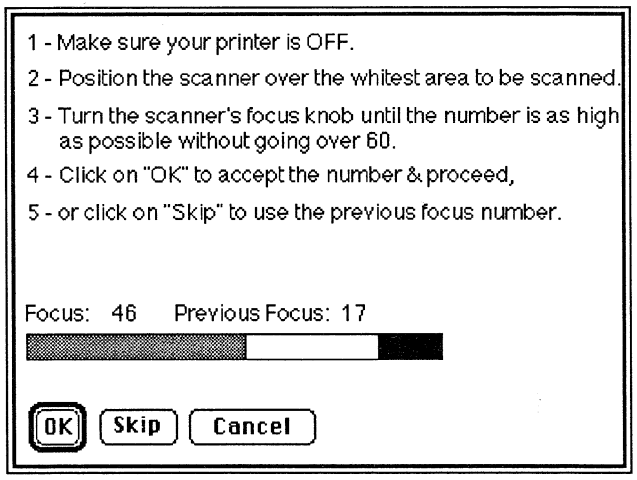

Figure 2-4: The focus dialog box.

Focusing puts the lens of the scanner in the right position for scanning. *Proper focusing is critical to get a full range of shades in every image.* Look between your original image and the scanner: you can see a red light shining onto your original. The light reflects off the document and is recorded by the scanner.

Focusing is easy. Simply follow the instructions in the focus dialog box. Grasp the print head assembly of the printer–not the scanner itself to move the scanner. Focus on the lightest part of the area *to be scanned*, (which may not be the lightest area of the page). Use your finger to gently roll the focus knob back and forth until the focus number on your screen is as high as it will go. The exact number varies from scanner to scanner and from original to original. Don't worry if the focus number flickers a bit.

Your focus number should be between 30 and 60. If the number is greater than 60, use the focus knob to bring the number down to 60. *Be sure the number is not above 60 before continuing to the next step.*
ThunderScan GS saves the focus number. To continue:

- Click on the **OK** button (or use the previous focus number by clicking on the **Skip** button).

Scanning an Image

After focusing, the printer setup dialog box appears:

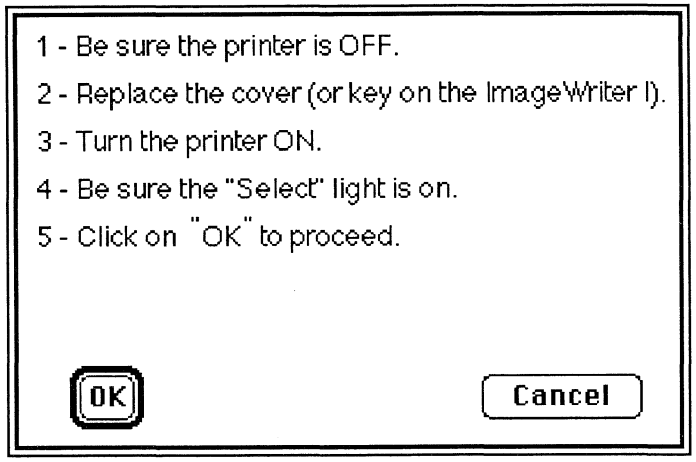

Figure 2-5: Dialog box for replacing the printer cover or scan key.

Be sure to follow the instructions on the screen. To proceed, click on the **OK** button. Clicking on the **Cancel** button exits the scanning sequence.

After clicking on the **OK** button in the printer setup dialog box, another dialog box for adjusting the original will appear:

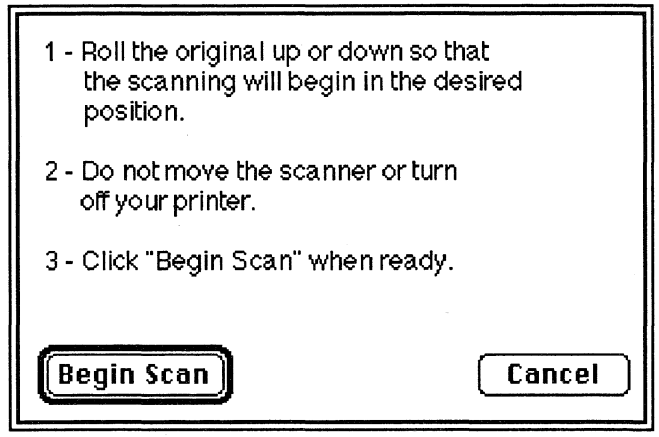

Figure 2-6: Dialog box for adjusting the original.

If you are using an ImageWriter II, the printer will go through its normal startup routine. Make sure the scanning light is shining through the hole in the plastic paper guide. Use the red line on the paper guide as a reference for adjusting your original. The red line indicates where scanning will begin. After positioning the original, click on the **Begin Scan** button.

ThunderScan GS will create a scan window and the scanner will move back and forth, scanning the image line by line. After a few minutes, the image will begin to fill your screen and look like this:

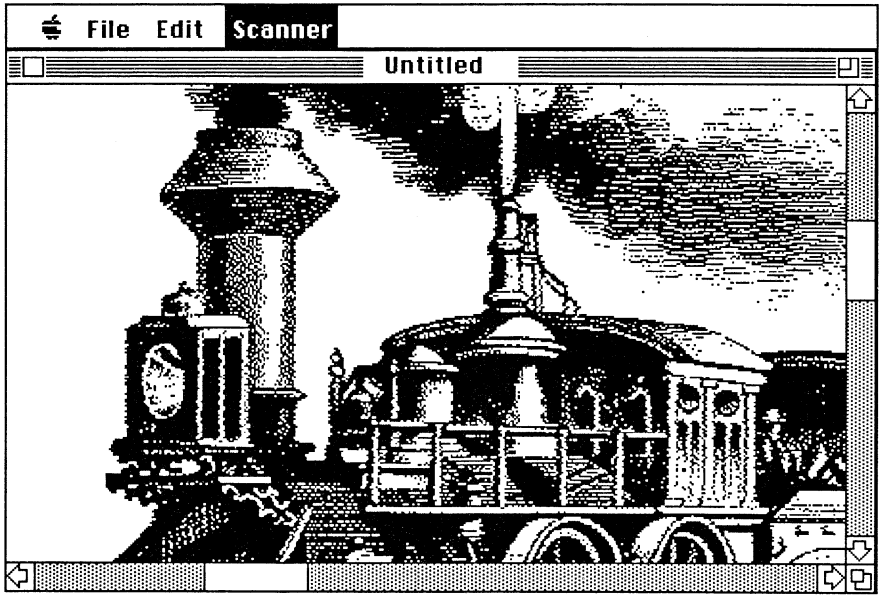

Figure 2-7: The scan in progress.

Using the Mouse During Scanning

Usually you won't have to use the mouse during scanning. If you do, you'll notice that the pointer doesn't move easily. That's because scanning is a very intensive procedure that requires most of the processing power of the Apple IIGS.

Pausing/Stopping the Scan

To pause or stop the scan, press the ♁ key. A pause dialog box appears:

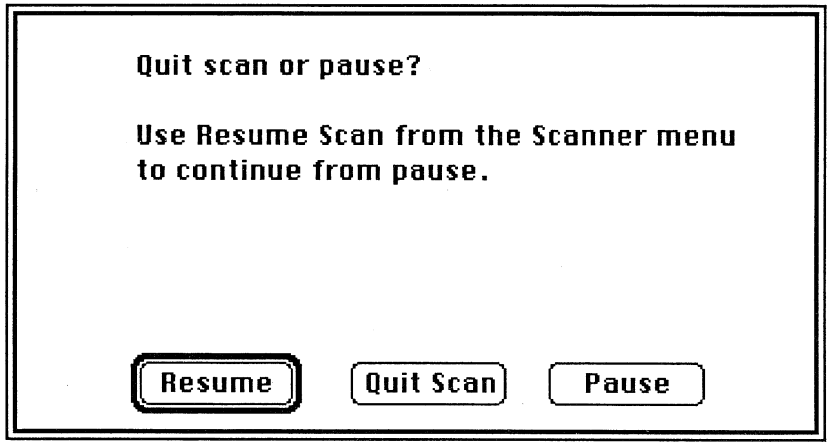

Figure 2-8: The pause dialog box.

Clicking on the **Pause** button will exit the pause dialog box, allowing you to move your mouse and make changes to contrast and brightness. After pausing, select **Resume Scan** (or press ♁- R) from the **Scanner** menu to begin scanning again. Clicking on the **Quit Scan** button will stop the scan. Clicking on the **Resume** button will exit the pause dialog box and continue scanning.

Chapter Three

USING THUNDERSCAN GS

Playing with ThunderScan GS

After you've finished scanning an image (or opening an image from disk), you can move the image around to see more of it, adjust the contrast and brightness, add colors, save and print it.

Scrolling

You can **scroll** an image that is larger than the window—right or left, up or down. To scroll:

- Move the pointer onto the arrows of either the vertical or horizontal scroll bars of the image window.
- Click the mouse button to move in small increments.
- Slide the scroll box to move in larger increments.

When you release the mouse button, ThunderScan GS pauses to refresh the screen by reading a new section of the image from disk.

The Clipboard

Copy copies a selected part of an image to the Clipboard. The **Cut** and **Paste** commands do not work and will always be dimmed. An image copied to the Clipboard will not retain its contrast, brightness and filter settings.

To copy an area to your Clipboard:

- Choose **Copy** from the **Edit** menu (or press ⌘- C). The pointer (↗) changes into a cross bar (+).
- Move the cross bar onto the image area.
- To select a portion of the image, hold down the mouse and drag the cross bar over the portion of the image you desire (the maximum area that can be copied is a single screen).

Changing Contrast and Brightness

ThunderScan's contrast and brightness controls are similar to the controls on a television set. The brightness control makes the image lighter or darker. The contrast control alters the range of grays in an image. When contrast is increased, dark grays become black and light grays become white. Contrast and brightness settings affect the entire image.

To adjust the contrast and brightness of your image:

- Select **Contrast & Brightness...** from the **Scanner** menu (or press ⌘- B).

The contrast and brightness scroll bars appear on screen:

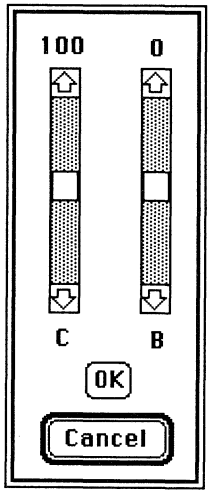

Figure 3-1: The contrast and brightness controls.

The standard settings are 0 for brightness and 100 for contrast. To change the contrast and brightness:

- Use the mouse and click on the arrows or drag the scroll box of the brightness and contrast scroll bars.

Notice the changes to the image? Click on the **OK** button when you have reached the satisfactory settings. Or, click on the **Cancel** button (or press Return) if you wish to cancel your changes.

Protect Controls

Changes to contrast and brightness affect the entire screen, including the menus, windows and all other controls. This means that it is possible to make the controls disappear if extreme changes are made to contrast and brightness settings. To guard against this, ThunderScan GS comes with **Protect Controls** turned on. If Protect Controls is turned off, you may notice that when the brightness or contrast controls are adjusted to either extreme, the screen may turn completely black or white. Don't panic. Press the Return key to exit the contrast and brightness controls and return to the image window. However, brightness and contrast settings will not affect the absolute black and white pixels of an image when protect controls is turned on.

Using the Filter

The **Filter** allows you to create a multitude of special effects. You can create negatives, add color, or simply view the percentage of grays that make up the image.

To use the filter:

- Select **Filter...** from the **Scanner** menu (or press ⌘- F).

The filter dialog box appears:

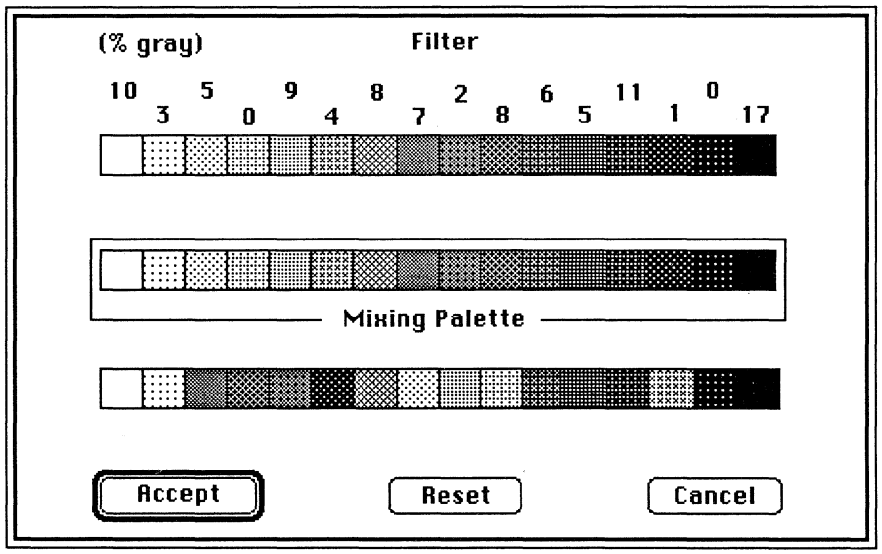

Figure 3-2: The filter dialog box.

There are three palettes: **gray**, **mixing** and **color**. The top palette shows the 16 possible shades of gray. The numbers at the top of the gray palette show the percentage of each shade present in the screen currently being viewed. The percentages of gray values will serve as a reference when using the color palette.

The mixing palette lets you combine gray values from the gray palette and colors from the color palette to change an image. Shades or colors are dragged from the gray or color palettes onto the mixing palette. Here are a few ideas:

- To invert an image, reverse the order in the mixing palette. Drag grays from the gray palette onto the mixing palette so white is represented by black, black by white, and so on.
- To posterize an image, copy one shade to three or four shades in the mixing palette. The end result is an image that has fewer levels of gray.

Try it for yourself. When you feel you have achieved a desired effect, click on the **Accept** button to view the image. You can revert to the standard the gray palette by clicking on the **Reset** button in the filter dialog box.

In the ultra res mode, the mixing palette consists of four mini palettes with four entries in each. Changes made to one mini palette affect all mini palettes.

The black and white values in the mixing palette will affect the menus, windows and all other controls. Consequently, you should never set black and white to the same value. Otherwise, menus and commands will become invisible. If protect controls is turned on, you will not be able to alter the black and white values in the mixing palette. If you make your controls invisible, simply press ⌘- F to return to the filter screen and correct the palette.

Switching Display

ThunderScan GS allows you change the format and mode after scanning an image. To change format or mode:

- Select **Switch Display...** from the **Scanner** menu. The switch display dialog box will appear:

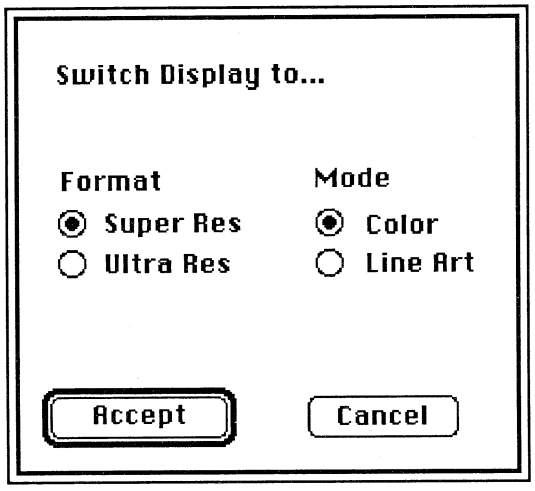

Figure 3-3: The switch display dialog box.

Use the mouse to select the desired settings. You can change the format from super res to ultra res or switch modes from color to line art. Line art mode is only available in the ultra res format and will be dimmed when super res is selected. Click on the **Accept** button to view your changes. Click on the **Cancel** button to ignore the changes and return to the image window.

Saving Scanned Images

After you have finished playing with your image, you may wish to save it. ThunderScan GS saves images in the popular file formats to allow them to be used with almost any program for the Apple IIgs that uses graphics.

To save a scanned image:

- Select **Save As...** from the **File** menu (or press ⌘- S). The scan file format box appears:

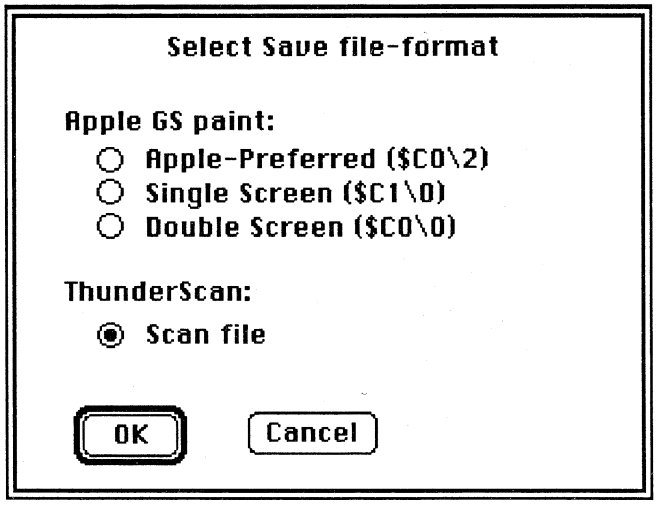

Figure 3-4: The scan file format box.

Saving as a ThunderScan File

Saving as a ThunderScan file saves the entire image you've created. Scan files can be reloaded in the ThunderScan GS program so you can make changes to brightness, contrast, and the filter. Scan files are the only files ThunderScan GS can load. Be sure to keep a copy of your images as scan files in case you need to use them again.

Saving as Screen Files

Screen files can be used with a variety of different programs, but they cannot be loaded into ThunderScan GS. Before saving an image as a screen file:

- Make sure the brightness, contrast, and filter controls are set to your liking.
- Use the scroll bars to position the image for saving. The area displayed will be saved.

The **Apple-Preferred ($C0\2)** file saves one screen of the image. It is a compressed file and takes up less space than the Single Screen file. The Apple-Preferred file is supported in programs like DeluxePaint II, Paintworks Gold, and AppleWorks GS.

The **Single Screen ($C1\0)** also saves one screen. It is an uncompressed file and will require 65 blocks on disk. Single screen files can be imported into almost any painting program.

The **Double Screen ($C0\0)** saves two screens of an image, the screen being viewed and the one directly below it. It is a compressed file. Double screen files can be used in Paintworks Plus and Paintworks Gold.

Once you have decided on a file format:

- Use the radio buttons to select your choice.
- Click on the **OK** button (or press Return). Clicking on the **Cancel** button will exit the save dialog and return to the image window.

After clicking on the OK button, another dialog box will appear:

- Type in a filename.
- Click on the **Accept** button (or press Return).

ThunderScan GS saves the file to the prefix entered in the prefix selection of the scan screen.

Opening Images

ThunderScan GS only loads scan files and will not load screen files. To load an image:

- Select **Open...** from the **File** menu (or press ⌘- O).
- Click on the **Disk** button to change volumes.
- Select the file you want and click on the **Open** button (or press Return). ThunderScan GS loads the file.

Printing with an ImageWriter

ThunderScan GS allows you to print with an ImageWriter. This section explains how to print an image with the ImageWriter and the options available.

- If you are using an ImageWriter II, adjust the paper thickness lever to the up position.
- Use the scroll bars to position the image in the window to be printed. ThunderScan GS prints an 8 X 10 inch area from the upper left corner of the image being displayed.
- Select **Choose Printer...** from the **File** menu and select the desired printer.
- Choose **Print...** from the **File** menu (or press ⌘- P).

The ImageWriter **page setup** dialog box appears with printing instructions:

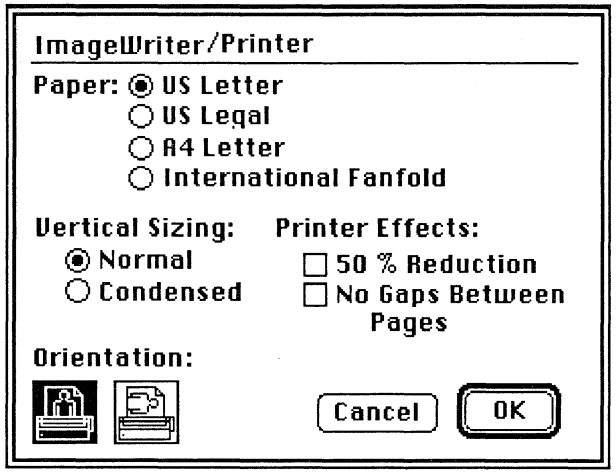

Figure 3-5: The ImageWriter page setup dialog box.

Normal should be selected for the **Vertical Sizing** option. **Condensed** will cause images to be compressed vertically in size. **50% Reduction** should be used when you are printing line art images. Gray shade images will appear dark when printed at 50% reduction with an ImageWriter.

After the page setup options are set to your liking, click on the **OK** button to proceed. The print dialog box appears with further printing instructions:

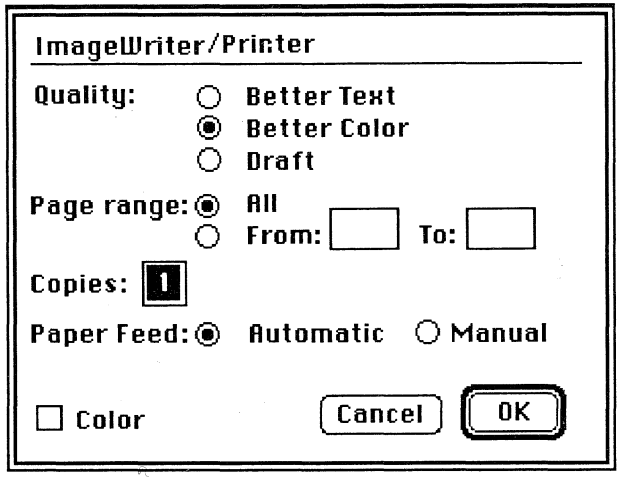

Figure 3-6: The ImageWriter print dialog box.

- **Better Color** should selected as the **Quality** (**Better Text** and **Draft** are used for printing text).
- If you have an ImageWriter II and a color ribbon, you'll be able to print your images in color. (You'll want to colorize your image using the filter palettes first).
- Click on the **OK** button.

Printing begins after a few moments.

Stopping Printing Early

To stop printing before the ImageWriter is finished:

- Hold down the Command key and type a period.

After a few moments, printing will stop. ThunderScan GS returns to the image window.

Printing with a LaserWriter

If you have a LaserWriter available, you'll be able to print PostScript® halftones. Before you begin you'll want to make sure your system is properly configured for use with a LaserWriter. Since the ImageWriter requires the printer port, your LaserWriter should be connected to the modem port. To prepare your LaserWriter for printing:

- Make sure the LocalTalk™ cable is connected to the modem port on your Apple IIGS.
- Enter the **Control Panel** and make sure it is configured for AppleTalk in slot 7 and **Your Card** in slot 2.
- Select **Choose Printer...** from the **File** menu.
- Use the mouse to choose printer type (LaserWriter) and printer port (Modem). Click on the **OK** button.

Choose **Page Setup** from the **File** menu. The LaserWriter page setup dialog box appears:

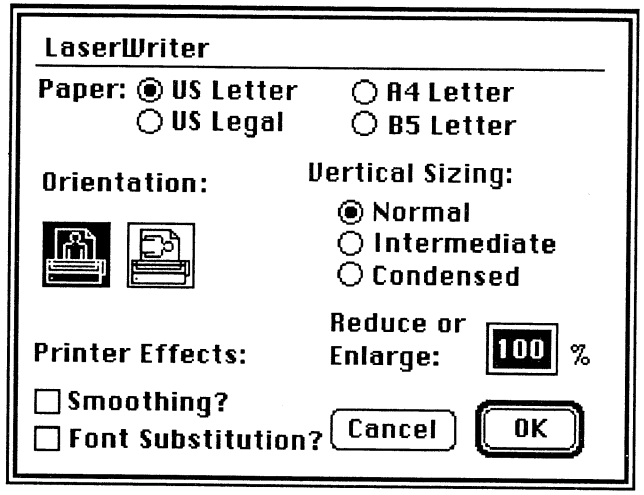

Figure 3-7: The LaserWriter page setup dialog box.

You can make changes to printed resolution and orientation through Page Setup. The **Vertical Sizing** options are generally used for printing text files, but can also alter printed graphics. The **Intermediate** and **Condensed** options will compress images vertically. The **Smoothing** and **Font Substitution** options are ignored in ThunderScan GS.

The **Reduce** or **Enlarge** option controls the printed resolution and size of printed images. Use **100%** to print the image at actual size as it appears on the screen. Use a **50%** reduction to print an image that is half the length and width of the actual size (1/4 of the area) with twice the resolution.

To print to the LaserWriter, choose **Print...** from the **File** menu (or press ⌘- P).The LaserWriter print dialog box appears:

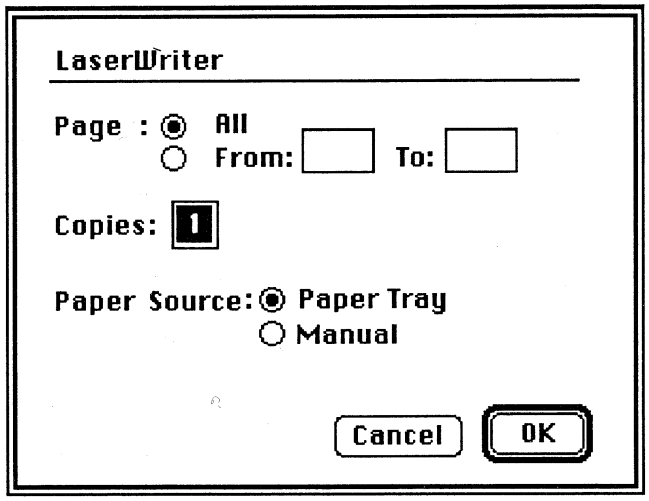

Figure 3.8: The LaserWriter print dialog box.

- Set the number of copies and the paper source.
- Click on the **OK** button.

In a few minutes, your image will print.

Tile Printing

Tile printing prints your entire scanned image on a series of pages when the image is larger than 8 X 10 inches. Tile printing starts at the upper left corner of the image displayed on screen and continues printing the entire image on separate pages. The pages may then be pasted or taped together. Tile printing is ideal for creating posters. In most cases, you'll want to use the tile printing option. Due to memory allocation for printing, it is possible to create an image that is too large to print.

To tile print:

- Scroll the image to be printed so that the upper left corner of the area to be printed image is in the upper left corner of the screen.
- Select **Choose Printer...** from the **File** menu and select the desired printer.
- Select **Tile Print** from the **File** menu (or press ⌘- T).

The print dialog box appears.

- Set the mode for printing.
- Click on the **OK** button.

ThunderScan GS will prepare the data for printing. Be patient, tile printing can take a while. Because of the nature of Apple's printer drivers, extraneous data is often printed to the right side of the image. This strip of printed area can be trimmed away with scissors.

Printing an Image on One Page

ThunderScan GS prints one screen width of an image per page, whether or not a reduction is specified in the page setup dialog box. To print an image on one page, you must scan at the appropriate DPI for the size of the original. To do this, adjust the DPI scroll bar until the view rectangle is approximately the same size (or slightly larger) as the width of the scan rectangle.

Quitting ThunderScan GS

When you're finished using ThunderScan GS and want to leave the application, simply:

- Choose **Quit** from the **File** menu (or press ⌘ - Q).
- Click on the **Yes** button to exit ThunderScan GS.

If you have not saved the current image, a dialog box will appear:

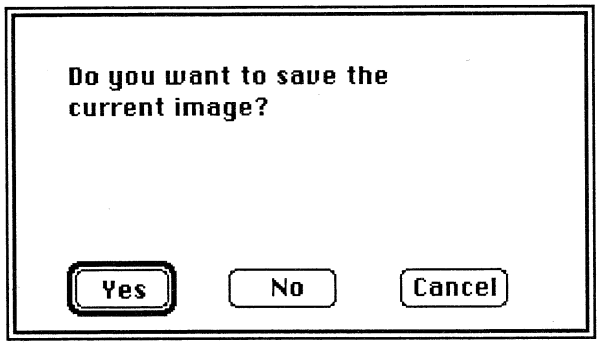

Figure 3.9: The quit dialog box.

- Click on the **Yes** button if you want to save the image.
- Click on the **No** button if you don't wish to save your image or any changes might have made.

Disconnecting the Scanner

Whenever you leave ThunderScan GS, you should disconnect the scanner. Other software may not operate properly with the scanner connected.

To disconnect the scanner:

- Loosen the thumbscrews and unplug the scanner from the game port.
- Remove the cartridge from your printer and insert a ribbon cartridge.
- Store the scanner in a safe place.

Keyboard Shortcuts

⌘-B	Contrast and Brightness
⌘-C	Copy
⌘-F	Filter
⌘-N	New Scan
⌘-O	Open
⌘-P	Print
⌘-Q	Quit
⌘-R	Resume Scan
⌘-S	Save
⌘-T	Tile Print

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