

Equipment

Computers

1. Macintosh G3 Computer

350 MHz G3 processor, 14.4 gigabyte hard disk, 256 megabytes of RAM.

21" Triniton Color monitor, zip and CD ROM drives.

Connected to Leafscan 45, Kodak XLS 8600 PS printer, and Epson Stylus 3000 printer.

2. Macintosh Power PC 7600 Computer

250 Mhz Power PC 604 processor, two 1 gigabyte hard disks, 192 MB RAM.

17" Trinitron Color monitor, floppy disk, zip, and CD ROM drives.

Connected to the HP Scanjet 3c and the Nikon 35mm scanner.

Alternative connection to the Epson Stylus 3000 printer

3. Macintosh Quadra 840 AV Computer

-Motorola 60840 processor, one 230 MB internal hard drive, one external one GB hard drive, 24 mb RAM.

17" Triniton AV color mointor, zip, CD ROM and floppy drives.

This is the one on the cart. Used primarily for classroom presentations.

Scanners

4. Leafscan 45 Scanner

-Performs high-resolution scans of film negatives or positives.

-Accepts film sizes of 35mm, mounted and unmounted, 6x6cm, 6x7cm, and 4x5in.

5. HP ScanJet 3c Scanner

-Flatbed scanner used to scan printed images.

-Accepts originals up to legal size.

6. Nikon LS-1000 Scanner

.Scans 35 mm slides and negatives.

.Uses an adapter to hold negatives.

Printers

7. Kodak XLS 8600 PS Printer

-Color Dye Sublimation Printer.

-Capable of 300 dpi.

-Prints black and white without changing ribbon.

-Prints both letter and legal size.

8. Epson Stylus 3000 Printer

1440 x 720 dpi color inkjet printer

prints on plain or photo-quality paper, up to 16.3" wide

9. HP Design Jet 650C Printer

.Prints images on 36" wide rolls of paper.

.Ink jet. CMYK. 300dpi.

Connected through the network to either the Macintosh G3 or 7600 computers.

Powering Up

The Macintosh peripherals are connected by a SCSI chain, and so one must follow a proper sequence when turning the power on and off. Even if you don't plan to use all of the equipment, you should turn everything on. Turning on a peripheral after the computer is on is a good way to freeze the system. Correspondingly, the computer should be shut down before the peripherals are shut off.

Turning the power ON

The power control box sits beneath the monitor.

1. Starting at the left, turn on each of the power control box switches in sequence.
2. Press the **Power On** key on the computer (the one on the top right of the keyboard that has a left pointing triangle on it).

G3 peripherals:

1. Leafscan 45
2. Epson Stylus 3000

MAC 7600 peripherals:

1. Nikon LS-100 scanner
2. HP ScanJet 3C flatbed scanner
3. External Zip drive
4. External hard drive for digital image storage

The Kodak XLS printer is connected to both printers through the network, and is powered by turning on the G3's power strip.

Turning the power OFF

Do the following:

1. Use **shutdown** in the **special** menu.
2. Turn off each of the switches from right to left in sequence.

Selecting an Application

After the computer has been turned on, you will be in the Macintosh "Finder". To start an application, go to the apple menu in the upper left of the screen. Click and hold the mouse button on the **apple** and drag the cursor down. You will see a list of many things.

Many of the items are folders. Folders are easily identified by the black arrow on the right side of the menu item. The arrow indicates that there is another submenu from which to choose an application.

While still holding the mouse button, slide the cursor carefully to the right until the submenu appears. Then slide the cursor down until the item you want to select is highlighted. Now release the mouse button.

If you would like to use PhotoShop, slide the cursor down to **Graphics (7600)** or **Applications (G3)**, then to the right, then slide down in the submenu to **Adobe PhotoShop** and release the button.

Useful Programs

Details on the use of these programs may be found in the help menu once the application is running, on the website of the product or company, or in books available in the Edgerton Center. This guide is only intended to help you choose the correct program for your purposes, and provide a few reminders about common problems.

Adobe Photoshop is the primary program used in the Edgerton Center for working with digital images. You can open existing files, or scan new images according to the directions for the individual scanners or digital cameras you need. Books on the specific tools of Photoshop are available in the Edgerton Center, or are required for classes on digital imaging. Remember to save copies of your work often, and save multiple versions if you are experimenting with your image. Double clicking on any tool will bring forward its options palette. Remember that many tools have other, similar tools hidden in a submenu underneath them, if you do not see the tool you need. The window menu will show you any hidden palettes you are searching for.

Adobe ImageReady is similar to Photoshop, and is included with Photoshop 5.5. It has many of the same tools as Photoshop, and, in addition, tools to prepare an image for use on web pages. In this program, you can animate images, slice them for faster loading or use as multiple hyperlinks, or create image changes with mouse rollovers.

Adobe Illustrator is for more freeform art. It is similar to other Adobe products, and you can easily jump around between the three programs described to create your desired product. Illustrator is particularly suited to independent design and the imitation of analog art. It also allows the easy creation of 3D shapes or shading.

Adobe Premiere is used for creating video. This video can later be converted to a Macromedia Flash video for web use. A video file can be created by animating still images and text, or by editing together video clips from another source, such as a digital camcorder. As with ImageReady, files from other Adobe programs can be animated in Premiere, though this is a more complex program.

How to Save

To save your image for the first time, or to save your image under a different name or file format, go to **File ⇧ Save As**. If your image has already been saved once, but you have made some changes and want to save them, go to **File ⇧ Save**.

The difficult part of saving is selecting the file format. Here are some general guidelines:

If you plan to work with the image again soon in Photoshop, save the image in the Photoshop program format. This will preserve the separate layers and other tools specific to the program.

If you plan to save your image in a different format, you may need to flatten the layers first. If you plan to export the image to the network or to a disk, use the JPEG format with moderate compression. If you don't want to compress your image, use another format, such as GIF. If you are going to place your image into some other document, for example, into a PageMaker document, save your image as a TIFF.

When giving a name to your image, try to keep the name fairly short but descriptive. At the end, put a period followed by three letters that identify the file format you are going to use to save the file (for example **.jpg** for JPEG, **.tif** for TIFF, and so on).

Be sure to **Save** your file on the appropriate drive. You should never save your files on the **Milk Drop** drive or on the **Desktop**; either transfer it to Athena or save it to a personal Zip or floppy.

Both the G3 and the 7600 have partitions called **Photoshop Cache**. These are used to supplement the RAM of each computer. Never place any file or folder in these folders. They not only interfere with Photoshop operation but, even when removed, leaves the Photoshop Cache fragmented, leading to machine crashes.

To make a scan using the Leafscan45

First, load Adobe Photoshop. While it is loading, get the black box out of the cabinet above the Leafscan45. It may already be out. In the back part of the box there is a large metal bracket. There are several circular metal disks in front of this. Each of the metal disks is for a different film size: 35mm, mounted (slide) and unmounted, 6x6cm, 6x7cm, and 4x5in. Choose the proper disk for your film. See images 1 and 2.

Dust off your film with the can of pressurized air and place it inside the metal disk just as you would with a darkroom enlarger. There are instructions on the metal disk concerning the orientation of the emulsion side of the film. Generally the emulsion side is not shiny like the backing. The printing on the film edge is readable when viewed from the back; it is reversed when viewed from the emulsion side.

Open the large metal bracket and place into it your loaded metal disk. Properly orient the disk using the white mark on the metal disk and the angle guide on the bracket. For example, for a portrait image, the mark should be at either 0 or 180 degrees; for a landscape, the mark should be at 90 or 270 degrees. If your strip of negatives extends beyond the edge of the metal disk, **make sure it does not cross the hinges of the bracket**, or protrude outside it when closed. You may need to cut your film in order to prevent this. This will prevent the scanner from jamming. More important to you, if your strip is too long, the scanner could ruin the film.

Load the bracket into the front of the machine, flat, with the proper side facing up (the bracket is printed to tell you which side faces up for scanning). Slide it into the machine as far as it will easily go. The end closest to your negative goes in first (the top end of image 2). It should slide in so that the straight sides of the bracket disappear, the narrower piece (bottom end of image 2) will still be visible.

While it is easy to change image orientation in Photoshop, you will have a better quality image if you scan it correctly in the first place, as there is some degradation of image quality with every transformation applied later. For this reason, it is helpful to consider your final output. The largest prints on most printers can be made with the long dimension of the image in the printing direction rather than across the width of the printer frame. The choice of when to rotate the image by 90 degrees to accomplish this is yours, depending on your work habits.

Now that PhotoShop is loaded, go to **File-->Acquire-->Leafscan 2.2 SCSI**. A window will pop up. There is a box in the upper left which you will use to select the proper film size. Click, hold, and drag the cursor to highlight the proper film size. Select portrait if the long side of your negative is vertical, landscape if the long side is horizontal.

In the box right below it, select whether you are using black and white or color and whether your film is positive or negative.

Now click on **Calibrate**. It will say that a calibration already exists. Click on **Download**.

Next you click on **Focus**. You will be told to insert the image to be scanned.

Flip the entire bracket unit over (the words on the bracket say "This side up for scanning.") and slide it into the scanner. Push it gently but firmly until it stops. You should be able to see only about an inch of the circular metal disk.

You can then click on **Prescan**. This will give a rough estimate of what the final scan will look like.

You should see four small boxes above your image, each with a symbol in it. Click on the first box, which has the symbol of a cropping tool. The crop lines are along the border of the prescan window. Carefully move the mouse to the border until a double-ended arrow appears. Resize the crop box by dragging the double-ended arrow. Hold down the **option** key to see what your cropped image will look like. The **Prescan** box will also change to **Cropped**. Continue holding down the **option** key while clicking on **Cropped**. A new prescan will be made which includes only the cropped portion of the image. This will take a bit of time now, but will save you a lot of time later. Your objective now is to get the best scan possible at the least expense in image size. Cropping gets rid of what you will never want to print anyway.

Click on the second box above the image - the one which looks like a gradient icon. A blue rectangular box appears on your image. Resize the blue box by placing the pointer on one of the box edges, clicking, and dragging. Size the box so that it includes the darkest and lightest parts of your image. In **Auto Range** select **Both** and click on the **Apply** button that appears to the left of your image. The Leaf has a 48 bit dynamic range; Photoshop can use only 24 bits. This is a powerful but crude way of optimizing your image dynamic range while further controlling image size. For more advanced methods of adjusting exposure, refer to the Leaf Scan manuals.

Return to the Cropping tool to open the **Image Size** box to the left. Set one of the dimensions (width or height) and then click on the lock symbol next to that dimension. The size of the other dimension will be set automatically based upon the crop lines that you set earlier. Do not attempt to lock both width and height. Doing this while crop is selected will produce a worthless final image.

The image size should be that of your ultimate print. The resolution in dpi should be twice the line frequency of your print if it is halftone (e.g., printed on an inkjet printer such as the Epson) or equal to the 300dpi of the Kodak XLS 8600 dye sublimation printer if you are printing to that.

Take a look at the small numbers above the dimensions. It gives the pixel sizes of the image you are going to make. It also gives a file size based on those dimensions. Here are some things to keep in mind:

- The average color image is between 1 and 6 megabytes. The average black and white image is 500 kbytes to 2 megabytes. If your file is somewhere in this range, the quality for viewing on a screen will turn out just fine. The times you will need to make it larger than that is when you are printing the image to fairly large size. The larger the file, the longer it will take to scan, the longer it will take to work with the image once you get it into Photoshop, and the longer it will take to print.

When you have selected your dimensions, click on **Final scan**. Your image will appear in PhotoShop when the scan is complete. **Save** your file in the proper directory before you begin to manipulate the image.

To make a scan using the Nikon LS-1000

This scanner will accept unmounted 35mm negatives, black and white or color, positive or negative. Open Adobe Photoshop on the Macintosh 7600. There is a holder for the negatives in a Nikon box on top of the scanner. It consists of a black plastic frame sliding with a metal frame. Hold it so the print on the metal (Nikon) faces you. Open the frame at the clasp on the lower edge, and place your film inside so that your frame borders line up with those of the black plastic frame, and the emulsion faces down when the frame is closed, with the Nikon print facing you.

The black plastic holder has several frame-sized openings, while the metal one only has two. Slide the black plastic section so that the image you wish to scan lines up with either one of the openings in the metal frame. It is okay if a frame of the black plastic holder extends beyond the edge of the metal one, this will not be scanned.

Insert the end of the holder closest to the image you wish to scan into the scanner, emulsion side still facing down. In the **FILE** menu, select **Import->Nikon LS-1000**. The Nikon Scan window will appear. There is a manual for this program in the cabinet above the G3. Basic functions are covered here.

In the pull-down menus in the top of this window, make sure it is set for the type of film you are using, such as a black and white negative. Click the **Preview** button in the lower right corner of this window for a preliminary scan. You can set the size and resolution of your scan in the text fields in the upper left side of the window. The file size will be displayed in response to any changes; you may wish to reduce size or resolution in order to reduce your file size. You can use the Gamma curves window (the graph on the left side) to adjust the brightness and contrast of your image. The half-filled circle button is an automatic contrast function. The bottom right button, which resembles the accordion fold of a film enlarger if you have imagination, is an auto-focus function.

You can also set the resolution of your image. If you are scanning at a 1:1 ratio (your print will be the same size as your negative), use 2700 dpi, the maximum setting. For larger images, reduce resolution accordingly. You can use 300 dpi if you intend to print to the Kodak XLS dye sublimation printer. If you are printing a halftone image to an inkjet such as the Epson, you need a resolution of twice your intended line frequency. See the page about printing on the Epson to help you decide what this frequency will be.

Click **Preview** whenever you like to get an updated idea of your scan.

You can click the **Cancel** button in the lower right corner at any time to quit the scan program. This will not quit Photoshop.

When you are satisfied with your settings, click **Scan**, and a final scan will be made. If you are not satisfied with the result at this point, you will need to start over, so do plenty of Preview scans.

To make a scan using the HP ScanJet 3c

First, load Adobe PhotoShop. Lift the cover of the scanner and place your print or item to be scanned onto the glass. Your print should be face down on the glass, oriented so that the top of the image is towards the side of the scanner farthest from you (i.e. the back). Put your Zip or floppy disk in the appropriate drive, if you have one.

In PhotoShop go to **File-->Acquire-->TWAIN Acquire**. The scanner will make an initial prescan of your print and show you the results. You have several options before making the final scan.

You can adjust the type of your scan by clicking on the black triangle at the far end of the **Type** window. Usually the scanner will have automatically set this properly. The most common types are "Sharp Millions of Colors" and "Sharp Black and White Photo".

The scanner will automatically suggest some crop lines. You can change the crop settings manually by moving the pointer over one of the crop lines until a double-ended arrow appears. Drag the crop line to where you want it. You can get a better view of your cropped image by clicking on the **Zoom** button.

The size of the scan file is shown near the lower left corner of the DeskScan II window. The size of your scan will probably be too large for effective manipulation in PhotoShop. To reduce the image size, drag the **Scaling** slider bar to the left.

There are four buttons to the right of the **Size** box. The button with the two faces will flip your image. The button with the film strip will change your image to a negative. The button with the scales will allow you to proportion your height and width individually. The button with the lock allows you to change the crop lines without changing the image size.

You can adjust the **Brightness** and **Contrast** by dragging the sliders left and right, or by clicking on the arrows at the ends of the slide bars. You may also adjust the **Highlight**, **Shadow**, and **Saturation** using the sliders in the other windows.

If at any time you need a fresh prescan, click on the **Preview** button.

If you want to quit without making a final scan go to **File-->Quit** in the Desk Scan II window, NOT in the finder.

When your prescan is properly tuned, click on the **Final** button. Your image will appear in PhotoShop.

Save your file in the proper directory, preferably your disk, before you begin to manipulate the image.

Alternatively

You can also use the Scanjet directly, without going through Photoshop. You do this by **Apple ⌘ Graphics ⌘ DeskScan2**. However, using the DeskScan application directly has one small difference. When you hit **Final**, it will ask you what directory you would like to save the image to, and also what format. Choose the appropriate directory or folder, preferably your own Zip or floppy, and save the file as a **TIFF** file. This way you can work on your image later in Photoshop, and if you like you could resave in another format then.

How to Print on the Epson Stylus 3000

Make sure the printer cable is connected to the printer port on the back of the computer. Both the Kodak and the Epson Stylus print from the G3, so you may need to switch the two.

Go the <Apple> menu in the upper left corner of your screen. Go to **Chooser**. In the Chooser, select SC3000, from the printer port.

Set the paper guide in the printer tray for the size of paper you are using. Insert the paper face down. For photo-quality paper, fold a sheet over itself in bright light. The whiter surface is the side you wish to print on, and should face down in the tray. Select **Media Type** on the printer. Press the button until the type of media you are using is selected.

In the application you are about to print from, go to **File-->Page Setup**. Make any adjustments that are necessary. Check the orientation of your image. After this, check the **Image Size** of your file. The print size may be different than the screen display size.

If you are printing in color, set **Mode** to “Advanced”. Select Color Sync, RGB. Add border if desired.

For black and white, use “Grayscale” mode. You can print a color image in black and white without changing it to grayscale on the computer by selecting black ink in the print dialogue below, but you will get a better print by changing the mode before printing.

Next adjust the halftone screen. To change this, first go to **File-->Page Setup** and then select **Screen...** (if a Halftone Screen window appears, Click on the **Use Printer's Default Screen** button to deselect. You will now be able to control the printer settings.) and type in the new line screen. Your setting should be such that your image's resolution is no more than two and a half times your line screen. The line screen you select will affect the appearance of your print.

Look at the next few pages to better understand line screen. The original image is a 200 dpi file printed on a 600dpi printer with four different line screens: 50, 80, 100, and 200 lines/inch.

Select **File->Print**. Choose # of copies, etc. Choose color or black ink. Set the slider to either “quality” or “speed”. Click **Print**. If you get a message saying there is a discrepancy between the image sizes on the computer and on the printer, simply click the box “Fit to Screen” to allow printing to proceed.

In the printer dialogue, we do not recommend using the “fine” setting (1440 x 720 dpi). Instead, use (720 x 720 dpi). Since pixels are square, the “fine” setting increases the number of steps per line by interpolating new pixels that are the average of the two neighboring, original pixels. This detracts from image clarity by softening sharp edges and causing slight blurring in one direction.

How to Print on the EC Plotter 650C

Go the **Apple** menu in the upper left corner of your screen. Go to **Chooser**. In the Chooser, select Lase Writer 8. In the menu box below that, Zone 4 should automatically be selected. If not, select it. In the right menu box, select EC Plotter 650 C. This should be the only printer listed with a colored icon next to it, making it easy to find.

Set your image to the appropriate size. The maximum width is 36", and the length is limited only by your paper supply. Remember, you do not have to use high resolution for such large images. Doing so will only increase your file size and print time dramatically.

Go to **File-->Page Setup**, and make sure your image orientation is correct.

If you are printing a grayscale image, set the printer to **MONO**. If your image is in color, set the printer to **Color**. The button that toggles between these two setting is located on the front of the printer.

Go to **File->Print**. Printing may take a long time, as your file size will be large.

How to Print on the Kodak XLS

For the final copy of a color image, use the Kodak XLS 8600 Dye Sublimation printer. This printer accepts only letter sized Kodak Ektatherm XLS paper. NOTE: you may have to recalibrate your color balance when switching printers. You can use the printouts posted on the wall for rough guidance, but multiple printouts may be necessary. Make sure you have enough paper.

Only one of the color printers can be connected to the computer at one time. Make sure the printer you wish to use is the one connected.

Check to see that the Kodak Printer is ready to print. It will flash **READY-RASTER** along with the paper size and ribbon type. It normally contains a CMY color ribbon. A black ink ribbon is available, but ribbons can only be changed by experienced staff and with great difficulty. Grayscale prints can be made using the color ribbon, and print quality appears good. If you plan to print a large number of grayscale images on this printer, you can ask a staff member to change the ribbon.

Check your page orientation in Photoshop by going to **File->Page Setup**. Check your image print size in **Image → Image Size**. For 8.5" by 11" paper, the maximum image size is 8" by 8.93".

When your image is ready to be printed, go to **File → Export → Kodak XLS 8600 Printer....** In the printer options dialogue, check whether "paper" or "transparency" is selected, and change this if necessary.

The printer takes about two minutes to print. Do not touch the printed image until it is entirely out of the printer. It goes through the printer 3 times before it is actually done, 4 if the ribbon for the protective coating is installed.