



Michael Sauer  
Professional Photographer

## Printers and Printing

### — Expert Tips ‘n Tricks on Home Inkjet Printing Much More

Michael Sauer, professional photographer of northern California, will be presenting a tips and tricks on home ink jet printing, September 11<sup>th</sup> for SVCG. Anyone who is just beginning to enter the world of printing images at home or those frustrated with poor print quality will want to attend. Michael will be showing some examples of paper types and discussing technique he uses in his studio to produce prints for his customers. Michael's presentations are always entertaining, educational and, above all else, geared towards those with a beginner's level of expertise, but have an advanced desire to get results.

Saturday, September 11<sup>th</sup> from 9:30am-11am at the Library, 755 West Napa. This is a MUST for you to attend. Please invite your friends. Everyone is welcome. No charge.

### Table of Contents

Club Benefits and Info . . . . .	2	Spyware . . . . .	6
E-MAIL Basics . . . . .	3	How To Get Good Prints . . . . .	8
What's News . . . . .	4	Backing Up Data . . . . .	10



Apple and Windows Users Group



# Sonoma Valley Computer Group

OFFICERS FOR 2003-2004

**President**  
**Vice President**     **Beth Pickering**  
bethpick@emailx.net  
**Secretary**             **Stephanie Clark**  
stephanieclark@sbcglobal.net  
**Treasurer**             **Joan Fabian**  
JKFabian@vom.com  
**Newsletter**            **Kathy Aanestad**  
aanestad@vom.com  
**Members-at-Large**    **George Pick**  
gpick@vom.com  
                              **Jeanette Woods**  
jeanette@vom.com  
                              **Willy Smith**  
mailuser@spymac.com

## BOARD MEETINGS

Usually following General Meeting. Open to all members. Call 935-6690 for further information.

## MEMBERSHIPS

S.V.C.G. Annual Membership: \$20.  
S.V.C.G. Family/Couple membership: \$30 (residing at same address). Membership renewals are due and payable at the beginning of each year.

## GENERAL MEETINGS

S.V.C.G. meets second Saturday of each month at Sonoma Public Library, 755 West Napa Street; hours: 9:30AM to 11AM unless otherwise notified. Meetings free; guests welcome.

## ABOUT THIS PUBLICATION

*Sonoma Valley Computer Group Newsletter* is published monthly by Sonoma Valley Computer Group. **Desktop publishing services donated by: Kathy Aanestad.** Call: (707) 935-6690, email aanestad@vom.com. © 2004, SVCG.

## ONLINE NEWSLETTER:

<http://www.vom.com/svcg/index.html>  
Copyright © 2003, SVCG. All rights reserved. Sponsored by our local ISP, DataProfessionals, on 19480-8<sup>th</sup> St. East.

## MAILING ADDRESS:

Sonoma Valley Computer Group  
PO Box 649  
El Verano, CA95433

## RECYCLE: Donate Used Inkjet and Laser Cartridges

Kathy Aanestad is collecting used inkjet and laser cartridges to recycle. Don't throw yours away. Bring your used cartridges to any meeting. They will be gladly accepted. Thank you.

## SVCG UG Benefits

Benefits to being a member of the Sonoma Valley Computer Group are a summer Adobe Photoshop Elements 2.0 workshop, O'Reilly Press and PeachPit Press/NewRiders Press giving you a 20% or more discount on all their books and software! For more information, please contact Kathy Aanestad at 935-6690 or email at 'aanestad@vom.com'.

Additionally, SVCG belongs to the Apple User Group program whereby members can purchase Apple products at a savings. Contact Kathy Aanestad for user ID and password in order to access their online site. We need members help with finding contacts for PC user group offers so that they can be included in the newsletter postings.

b

## SVCG Members Aid Library

Fearless leaders from the Sonoma Valley Computer Group are volunteering their time at the Sonoma Regional Library. The Library has six new flat-screen, high-speed, Gateway public-access computers gifted by Friends of the Sonoma Valley Library.

These machines offer access to the Library Catalog, Internet Resources, Microsoft Works, and Super Search Interlibrary Loan. Although the "front-end" screen format looks a little unfamiliar when recalling the old terminals, the advanced search-limiting and sorting capabilities far surpass what was previously available.



Those with questions, as well as those reluctant to try new online command protocols, are invited to ask SVCG volunteers for assistance. Our volunteers hours are 11am Friday morning.

SVCG affiliation has been a significant factor in our ability to continue as a computer club. We are pleased to participate in community affairs such as this.

**Kudos go to Jeanette Woods,  
Jeanette Barekman, George Pick,  
Joan Fabian, and Wes Ford, Beth  
Pickering, and Elizabeth Palmer.  
Thank you for your help.**

## Michael Sauer's Website

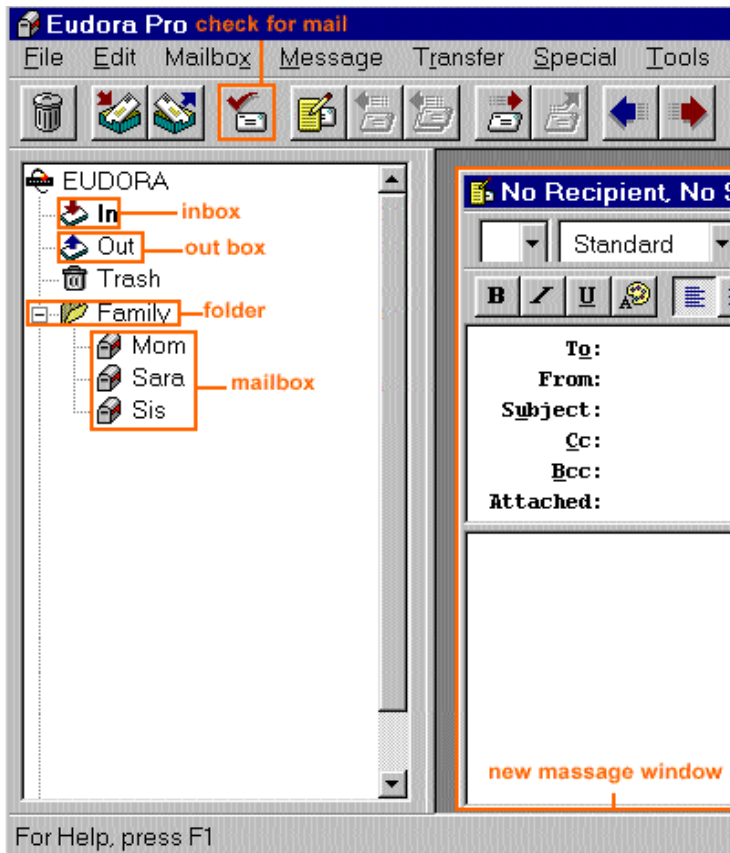
Go to: <http://www.reallycoolimages.com>

# E-MAIL BASICS

You have to admit it: Email is truly amazing! You can send messages to people all over the world and get responses almost instantly, sometimes even with photos attached. In this lesson you'll learn to send and receive email more efficiently.

An Email Client is a software program that enables you to perform all electronic mail tasks. All email clients enable you to compose messages and send and receive mail. Most email clients also enable you to organize mail and to send attachments in messages.

Note on taking this email lesson: The features, commands, and buttons will be slightly different for each mail client. Screen shots will be provided that will approximate what you might find in your own client. If at first you don't see an exact or close match, run your mouse over buttons or click on some of the menus to find the same command.



## E-MAIL ADDRESSES

The format for all email addresses is username@domain.general and breaks down as follows



"Username" is the ID of the person who has the address, whether real or an alias.

The "@" symbol attaches the user to their email box location.

Note: If an address doesn't have the @ sign attached, it's not an email address!


The "domain" refers to the provider of the email box.

"General" refers to a three-letter extension signifying the type of email provider.

Note: ".com" refers to a commercial entity, ".org" to an organization, ".net" to a network provider, and ".edu" to an educational institution. These are the most common extensions.

## TO SEND A MESSAGE

To compose a message:

 1. Locate the Compose Message command. It should be on your email client's menu or toolbar, although it may have a different name. Other possibilities include Message, New Message, Compose, or New Mail Message. Look for them under the File or Message menus.

2. Address the message. In the To field type the e-mail address of a friend or family member, such as john@abc123.com.

3. Copy the message to yourself. Move your cursor to the "Cc" line, and type your own email address there. By doing so, you will send yourself a copy of the message. Cc: "Carbon Copy" - This sends a copy of the message to another person.

Bcc: "Blind Carbon Copy" - This sends a copy of the message to another person without any reference to that person in the actual email.

4. Give the message a subject. Move your cursor to the "Subject" line, and type: Email Basics.

5. Compose a message. Position your cursor in the message field, the large open space below the headings. Type "Hello Jennifer," and press Enter.

EMAIL cont'd on Pg. 5

SVCG  
Plugged into Technology 



# WHAT'S NEWS

---

## **BROWSING THE WEB AS A LIBRARY**

Marti Hearst, a professor at the School of Information Management and Systems at the University of California, Berkeley, has developed a prototype search program designed to turn Web searches into something that approximates browsing the stacks of a library. The Flamenco search tool uses descriptions of archived items--in Hearst's tests, 35,000 images from an art collection--to display items grouped by criteria such as artist, period, medium, and subject. Users searching for representations of flowers in the 18th century, for example, could see results grouped by decade or by variety of flower. Flamenco can show groups of results that include paintings and sculptures of irises, or paintings of irises and roses. Hearst said the tool allows users to "compare and contrast, discovering new categories and relationships." Bruce Horn of Ingenuity Software is working on a tool that would allow a similar type of browsing on a computer, helping users find relevant resources that might be distributed in many places around a hard drive. New York Times, 19 August 2004 (registration req'd)

<http://www.nytimes.com/2004/08/19/technology/circuits/19next.html>

## **CANDIDATES INVITED TO VIRTUAL TOWN HALL MEETING**

Presidential candidates George Bush and John Kerry have been invited to participate in separate, online town hall meetings to discuss the nation's science programs. Organizers said that federal policies toward research and scientific projects are an important issue for the three million scientists, engineers, and doctors who would be eligible to participate in the meetings. Specifically, the issue of stem cell research has lately become the focus of disagreement between the two candidates, with Kerry promising to reverse Bush's ban on federal funding for stem cell lines created after August 9, 2001. A spokesperson for John Kerry said he would accept the invitation to participate in the virtual town halls; a spokesperson for Bush said he had not yet seen the invitation and so had no response at this time.

USA Today, 20 August 2004

<http://www.usatoday.com/>

## **DSL OUTPACES CABLE**

The Leichtman Research Group (LRG) reported that during the past quarter, DSL services drew nearly 8 percent more new subscribers than cable companies. Since the introduction of broadband access, cable has consistently outpaced DSL for its number of subscribers, due to aggressive marketing and often faster connection speeds. Analysts at Forrester noted that as high-speed Internet access reaches greater levels of market penetration, consumers are increasingly focused on price, and monthly charges for DSL service are generally less than for cable. According to Forrester, "Today's and tomorrow's broadband adopters will lean more toward DSL." A spokesperson from Verizon Communications confirmed the trend, saying that for her compa-

ny, "During the last two quarters of 2003 and the first two quarters of 2004, DSL grew faster than cable."

TechNewsWorld, 19 August 2004

<http://www.technewsworld.com/story/35957.html>

## **ACACIA OFFERS NEW, SOFTER DEAL TO SMALL COLLEGES**

Responding to complaints that the licensing fees it was demanding were excessive for some colleges and universities, Acacia Research Corporation is offering a revised schedule of fees for small schools. Acacia claims a patent that covers audio and video streaming technologies and has recently begun demanding license fees from organizations, including colleges and universities, that use such technologies. The fees, however, which were typically \$5,000 a year, raised objections from smaller schools. Under the new offer, schools with relatively small enrollments of distance-education students, or that generated no revenue from streaming technologies, would pay no fee. Larger schools could pay either 7 cents per stream or \$2 per student, with a minimum fee of \$1,000. As with the earlier deal, this new one includes a deadline, after which the fees will rise and schools that choose not to pay could face legal action from the company. A number of schools are working on a coordinated legal defense to Acacia and its patent claims, which are being tested in court and have already been dealt one setback by the courts in July.

Chronicle of Higher Education, 3 September 2004 (sub. req'd)

<http://chronicle.com/prm/daily/2004/09/2004090303n.htm>

## **RESEARCHERS RAISE THE BAR FOR DATA-TRANSFER RATE**

Researchers at the California Institute of Technology (Caltech) and the European Organization for Nuclear Research (CERN) this week set a new record for data transfer between the CERN facility in Switzerland and Caltech in Pasadena, California, 9,800 miles away. In the exercise, the group was able to transfer 859 gigabytes of data in less than 17 minutes, achieving a rate of 6.63 gigabits per second. Enabling such high rates of data transfer is vital to the success of the Large Hadron Collider (LHC), due to begin operating in 2007. The \$10 billion LHC is an enormous particle accelerator that scientists hope to use to find the Higgs boson, a theoretical particle that they believe creates mass. The LHC is expected to generate 15 petabytes of data per year, and this data must find its way to scientists around the globe to be effectively analyzed.

Internet News, 2 September 2004

<http://www.internetnews.com/infra/article.php/3403161>

## **MORE COMPROMISED DATA, OR SIMPLY MORE DISCLOSURE?**

Since January 2004, officials in California have notified nearly 600,000 students, faculty, and staff at the state's higher education institutions that personal data about them had been compromised in a number of separate incidents. In June, for example, an auditor working for the California State University system lost a hard drive that contained information including names, addresses, and Social Security numbers for 23,500 individuals. The largest single

incident involved data for more than 500,000 individuals, which was accessed by hackers who broke into computer systems for San Diego State University and the University of California, San Diego. A law requiring notification of such security breaches went into effect in July 2003. Joanne McNabb of the Office of Privacy Protection in the California Department of Consumer Affairs noted that the incidence of such compromises likely has not increased. "It's just that we know about them now," she said, "when we didn't hear [about them] before."

San Jose Mercury News, 2 September 2004

<http://www.siliconvalley.com/mld/siliconvalley/9568329.htm>

## U.S. COPYRIGHT OFFICE DRAFTS NEW VERSION OF INDUCE ACT

Responding to strong criticism of the recently introduced Induce Act, the U.S. Copyright Office has written a revised version of the legislation. The "discussion draft" offered by the Copyright Office attempts to shield devices such as Apple's iPod from prosecution for inducing consumers to commit copyright violations while outlawing networks such as Kazaa and Morpheus for doing just that. The draft limits liability to those who "intentionally induce" piracy—a more stringent definition of wrongdoing than in the original bill. The Copyright Office's draft has sparked new criticism, however, based on requirements that ISPs and technology companies must take all "reasonably available corrective measures" and cannot "actively interfere" with efforts to locate copyright violators. Sarah Deutsch, vice president and associate general counsel of Verizon Communications, noted that the language in the draft is vague and could make an ISP liable, for example, if it refused to provide copyright holders with a list of the company's subscribers. CNET, 2 September 2004

[http://news.com.com/2100-1027\\_3-5345528.html](http://news.com.com/2100-1027_3-5345528.html)

## CONVENTION TECHNOLOGY DONATED TO SCHOOLS

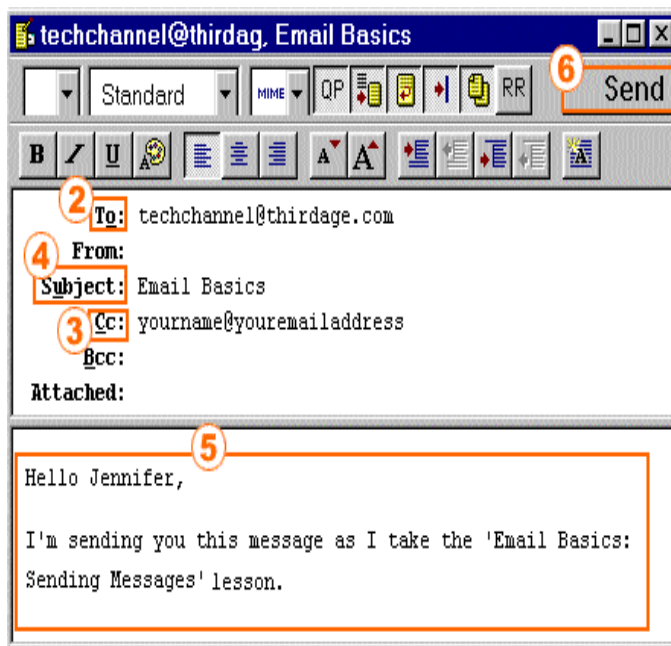
Computers and other high-tech equipment donated to the Republican National Convention in New York are being given to the city's public schools. Nextel Communications gave the convention 1,200 cell phones, worth more than \$250,000, which will now be used to improve safety and security in schools. Cisco Systems donated telephones and network hardware worth \$4 million for the convention, and some of that will find its way to the city's schools. Joel I. Klein, Schools Chancellor for New York, also said that schools would receive equipment from IBM worth about \$1 million. Klein said that private donations to the city's school system have totaled about \$160 million over the past two years. New York Times, 3 September 2004 (registration req'd)

<http://www.nytimes.com/2004/09/03/nyregion/03phone.html>

**Sept. 11**  
**Printers & Printing**  
**Tips 'n Tricks**

Email cont'd from Pg. 3

Then type, "I'm sending you this message as I take the 'Email Basics: Sending Messages' lesson." You can add anything else you like to the message, then "sign" your name if desired.



6. Click Send.

Or choose the appropriate Send command from the menu bar.

You did it! Well done! You've just sent your message to Jennifer Glos, ThirdAge's Tech Channel Producer.

## CHECKING MAIL



**Check mail button**

1. Find the Check Mail command. It may also be called Check New Mail. Look for it in the File or Tools menus.

2. Click the Check Mail command.

If you have received any messages they will now appear in your Inbox.

You did it! That's all there is to it. Did you get any mail?

Note: If you're on an hourly, rather than unlimited, ISP (Internet Service Provider) plan, you can save money by composing messages offline—that is, while you're disconnected from the Internet. When you're done composing, just log back on and send your messages.

## REPLYING TO EMAIL

1. Click on a mail message.

EMAIL cont'd on Pg. 7

# SPYWARE

---

Spyware is any technology that aids in gathering information about a person or organization without their knowledge. On the Internet (where it is sometimes called a spybot or tracking software), spyware is programming that is put in someone's computer to secretly gather information about the user and relay it to advertisers or other interested parties. Spyware can get in a computer as a software virus or as the result of installing a new program.

Data collecting programs that are installed with the user's knowledge are not, properly speaking, spyware, if the user fully understands what data is being collected and with whom it is being shared. However, spyware is often installed without the user's consent, as a drive-by download, or as the result of clicking some option in a deceptive pop-up window. adware, software designed to serve advertising, can usually be thought of as spyware as well because it almost invariably includes components for tracking and reporting user information.

The cookie is a well-known mechanism for storing information about an Internet user on their own computer. However, the existence of cookies and their use is generally not concealed from users, who can also disallow access to cookie information. Nevertheless, to the extent that a Web site stores information about you in a cookie that you don't know about, the cookie mechanism could be considered a form of spyware.

Spyware is part of an overall public concern about privacy on the Internet.

# ADWARE

---

1) Generically, adware (spelled all lower case) is any software application in which advertising banners are displayed while the program is running. The authors of these applications include additional code that delivers the ads, which can be viewed through pop-up windows or through a bar that appears on a computer screen. The justification for adware is that it helps recover programming development cost and helps to hold down the cost for the user.

Adware has been criticized because it usually includes code that tracks a user's personal information and passes it on to third parties, without the user's authorization or knowledge. This practice has been dubbed spyware and has prompted an outcry from computer security and privacy advocates, including the Electronic Privacy Information Center.

Noted privacy software expert Steve Gibson of Gibson Research explains: "Spyware is any software (that) employs a user's Internet connection in the background (the so-called 'backchannel') without

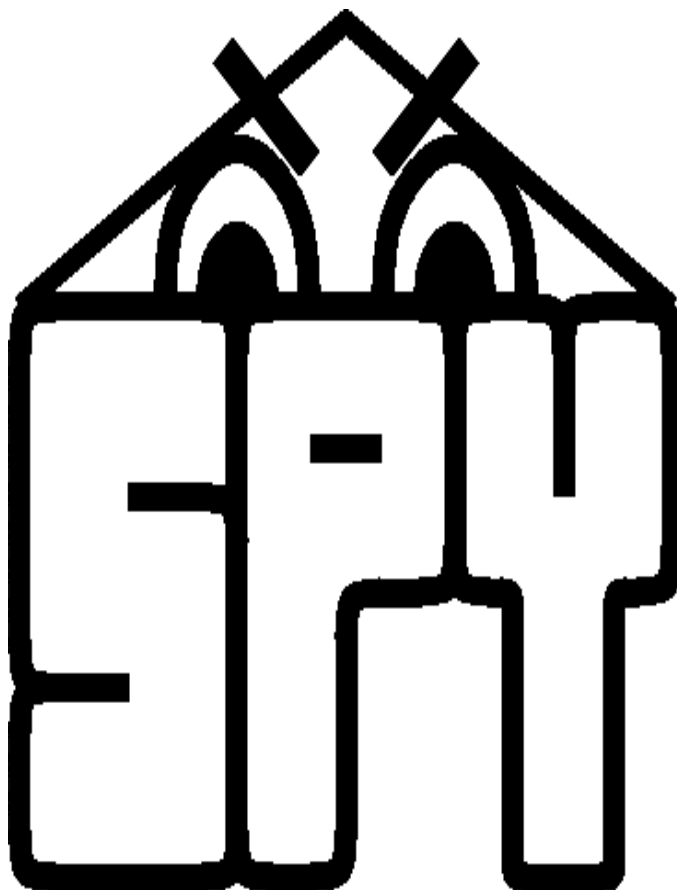
their knowledge or explicit permission. Silent background use of an Internet 'backchannel' connection must be preceded by a complete and truthful disclosure of proposed backchannel usage, followed by the receipt of explicit, informed consent for such use. Any software communicating across the Internet absent of these elements is guilty of information theft and is properly and rightfully termed: Spyware."

A number of software applications, including Ad-Aware and OptOut (by Gibson's company), are available as freeware to help computer users search for and remove suspected spyware programs.

2) AdWare is also a registered trademark that belongs to AdWare Systems, Inc. AdWare Systems builds accounting and media buying systems for the advertising industry and has no connection to pop-up advertising, spyware, or other invasive forms of online advertising.

[[www.whatis.com](http://www.whatis.com) definitions]

Practice safe computing.  
Use virus protection software,  
don't open anything from unknown senders,  
and be wary.



Select one from your Inbox. There are 4 ways to reply to an email. It's important to understand how they are different.

2. Click Reply.

Note the recipient named in the To line. This replies only to the person who sent it.

3. Click the Reply All button.



This replies to the person who sent it AND everyone who received it. Note what happens in the To and Cc lines. If there weren't multiple recipients of this mail, you'll only see one

recipient in the To line.

4. Click the Forward button.

This copies the email into a new email so that you can send the same message to someone else. If you wanted to send this on, you'd now type the email address of the person you wanted to receive this message.

5. Click the Redirect button.

This is similar to forward except it makes the sender as the original person who sent it. You may type in the email address of your desired recipient.

Note: This option may not be available in your email client. Also, REMEMBER that by using this option, the recipient can unwittingly reply to the original sender.

You did it! You now understand your options for replying to email.

### SENDING ATTACHMENTS

Most email clients enable you to send files within your mail messages as attachments. It's sometimes not as easy as just clicking the Attachment button, however.

To open an attachment, for example, you need to have a program on your computer that is capable of reading it. But, even if you have the right software, the translation between your email client and the sender's client may not be compatible. If you have this problem with an attached text document, ask the sender to simply copy and paste the document into the body of the message, and thereby avoid problems.

Unfortunately, that doesn't work for most other file types.

That said, here's how you send attachments:

1. Click Compose Message command or button.

It should be a command or button on your menu or toolbar.

2. Click Attach File or Insert File.



Attachment button

The command is often represented by a "paper clip" icon.

Click it to display the Attach or Insert File dialogue box. Here you can search through the directory of drives and folders to find the file you want to attach.

3. Find My Computer.

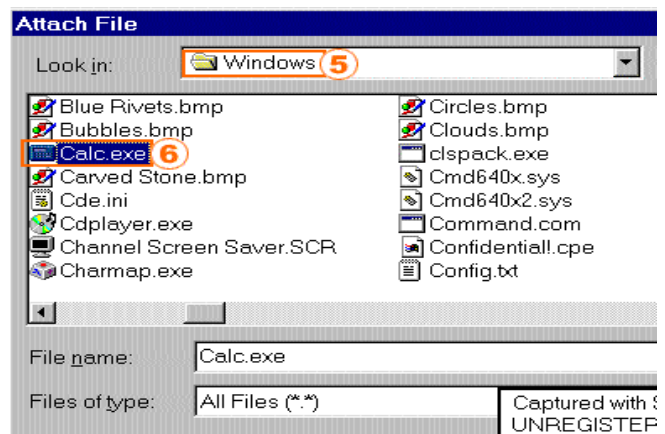
Click the Up One Level button until the "Look in" text box says My Computer.

4. Double-click the C: drive.

In the larger display window, click C: to display the files and folders found on your hard drive.

5. Double-click the Windows folder.

This contents of the folder will be displayed.



6. Find the Calc.exe file.

Use the scroll bar or arrows to locate it.

7. Double-click the Calc.exe file.

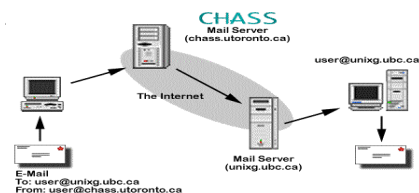
This will attach it to your mail message.

If you were really sending this message, you'd put your recipient's email address in the To line, add your message and signature, then hit Send.

8. Close the window.

Since this is practice, let's exit the window. When you're asked if you want to save changes, click No.

You did it! You've accomplished the easy part: you've attached a file to a mail message. The next step would be to cross your fingers and hope your recipient can open it on the other end.



# HOW TO GET GOOD PRINTS FROM DIGITAL CAMERAS AND SCANNERS

---

[from Ken Elliott's website <http://web.tampabay.rr.com/kelliott4/scanres.htm> ]

What resolution should I use when scanning photos? What resolution should I set my digital camera for? How many mega-pixels do I need in a digital camera? Should I use my 1200 dpi printer or buy a new 3600 dpi printer? There's a lot of confusion on this subject, so let's talk about image resolution and printer technology so you can make an informed choice.

## What is a pixel?

Digital images are actually a rectangular grid filled with dots called "pixels" (picture elements). A "Mega-Pixel" is a technical term for a million pixels (actually 1,048,576 due to the odd way computers store numbers). Each pixel is stored as a number that refers to a color. Numbers are stored in computers as "bits". The more bits you use the more colors you can get. Digital cameras store their pictures using 24 bits for each pixel, giving us about 16 million colors per pixel. Less than 24 bits per pixel give fewer colors and don't look as good. Some scanners use up to 48 bits per pixel, but most people can't tell the difference, and it makes the file twice as big. So our job is to figure out how many of those pixels we need to get a nice print.

Digital cameras have a sensor with a fixed number of pixels. Storing those pixels take up precious space in the camera's memory, so most cameras have the ability to reduce the size of the image by storing fewer pixels. This allows the camera to hold more images. The camera actually blends adjacent pixels together to create a lower-resolution image.

Scanners work in a different manner. Scanners have a sensor that physically moves and can vary their resolution to some degree.

First, we'll talk about scanning a regular color photograph. Let's say you want to make a copy of a photograph and print it the EXACT same size. Let's assume that your printer has a resolution of, say, 300 dots per inch (dpi). If you scan at 300 dpi, you get one pixel (picture dot) per printer dot. If you scan at 150 dpi, the printer takes each pixel and prints two dots across, and two dots high. That's easy math for the printer and your print will look as good as a 150 dpi print is going to look. But it won't look as good as it will scanned at 300 dpi.

But let's say you scan at 400 dpi, thinking you'll get a better print. 400 pixels divided by 300 printer dots is 1-1/3 pixels per printer dot. That means the color of the printer dot will be a mix of the

colors of the two pixels. If the adjacent pixels are the same color, there's no problem. But imagine that one pixel is white and the adjacent pixel is black. One white pixel and 1/3 black pixel adds up to 75% grey, so now your image has changed – you don't have pure white and pure black, you have a mixture of black, white and grey dots. The same thing happens if you scan at 200 dpi and print it at 300 dpi. The first printer dot will be the color of 2/3 of the first pixel, but the second dot will be a color calculated by 1/3 of the first pixel, and 2/3 of the second pixel. The printer will not handle this well and your picture quality will suffer.

Let's say your image has a checker board pattern of black dots and white dots. As long as the ratio of pixels-to-printer dots is a whole number (1:1, 1:2, 1:3, etc) you don't get a color shift, because the printer just prints more dots of the same color. But if the ratio is a fraction (3:2, 2:3, etc) the printer has to calculate the colors and you will get a color shift. Your black-and-white checkerboard prints with some grey dots. Plus, you no longer get proper dot alignment and funny moiré patterns can emerge. Your image quality drops.

It's easy to see this in our checkerboard example, but color photos have smoother transitions between colors. This will cause you to get a softer image, but doesn't wreck it completely. In our example, scanning at 400 dpi gives us a bigger file, longer scan time and a worse image than a 300 dpi scan. So, for our 300 dpi printer, we should scan at 300 dpi (1 dot per pixel), 150 dpi (2 dots per pixel), 100 dpi (3 dots per pixel), or 75 dpi (4 dots per pixel).

What if I want to enlarge the photo? If the photo is 4" wide and we want to print it at 8" (twice as big), we should double the scan resolution to 600 dpi. Then we tell our photo-editor software (I like Photoshop) to change the image from 600 dpi to 300 dpi, but keep all the pixels. In Photoshop's "Image Size" dialog box, I uncheck "Resample Image", then change the "Resolution" box from 600 to 300 and click "OK". If you allow Photoshop to resample the image, it will keep the physical size the same, but reduce the number of pixels, calculating new colors for each new pixel. But if you do not allow Photoshop to resample, it keeps the same number of pixels, and increases the size of the print. The file size won't change, we are just telling Photoshop how to tell the printer what to do.

## Here's the math:

(Print size) X (printer resolution) = (pixels)  
(Pixels) / (picture size) = Scan Resolution

To create a 2" wide print at 300 dpi you need an image to be 600 pixels wide (2 x 300 = 600). To get a 600 pixel-wide image, from a 6" wide photograph, we scan at 100 dpi (600 / 6 = 100).

But, let's say you have a 4.5" wide picture and you want to print it 8" wide. Your printer works best at a resolution of 600 dpi.

You multiply 600 times 8, which equals 4800 pixels wide. To get 4800 pixels from a 4.5" photo, we divide 4800 by 4.5, which equals 1066.66. That's not a round number so we'll scan at 1077 dpi. Can your scanner actually do this? Some professional drum scanners will but most consumer flatbed scanners won't. As you can see, this digital stuff is far from perfect.

My scanner has a mechanical resolution of 3600 dpi. The software will let me set it to 1077, but what it is really doing is interpolating, which slightly alters the image. To get around this problem, I run my scanner at 3600 dpi and have Photoshop resample the image. The algorithms in a \$700 professional photo editing software should be better than the software that comes with a \$200 scanner. Notice I say "should" – if you're serious, you test these things out. The big boys use drum scanners, which will truly let them achieve almost any resolution they want.

## Digital Cameras

My 4 megapixel digital camera can be set for different resolutions. I created a cheat-sheet for each resolution setting by dividing the camera resolution by my printer dpi. That tells me what size prints I can get for each resolution. An example:

Resolution - 1024x768

150 dpi print = 6.8" x 5.12"

300 dpi print = 3.4" x 2.56"

600 dpi print = 1.7" x 1.28

1200 dpi print = 0.85" x 0.64"

Resolution – 2272 x 1704

150 dpi print = 15.15" x 11.36"

300 dpi print = 7.57" x 5.68"

600 dpi print = 3.78" x 2.84"

1200 dpi print = 1.89" x 1.42"

So, if I want 300dpi prints that are about 7"x 5", I set my camera to resolution to 2272 x 1704, then crop the image in Photoshop to get the exact size.

## Digital Cameras vs. Scanners

In the above chart, look how small a 1200 dpi print is – its less than 2" wide. To get a 7"x 5" photo at maximum camera resolution, I can only print at 300 dpi. An 8" x 10" print at 1200 dpi requires slightly over 112 mega-pixels. So selling your 4 mega-pixel camera to buy a new 5 mega-pixel seems silly to me. If you double your print resolution, you double the width and double the height. That means you need four-times the number of pixels. So the next jump from a 4 mega-pixel camera is 16 mega-pixels, then 64 mega-pixels. We are a long way off from having consumer cameras of that size.

On the other hand, my scanner has an optical resolution of 3600 dpi, which allows me to scan at 1200 dpi and print full size at the maximum printer resolution. Or, I can scan at 3600 dpi, and blow it up 3 times bigger. You see why so many professionals still shoot 35mm film cameras and then scan the photograph. A full size 8.5"

x 11" scan at 3600 dpi is over 1.2 billion pixels – over a million mega-pixels! And I could print that at 1200 dpi for a print size of 33" x 25.5". At 300 dpi, it would be 132" x 76.5". You can see why a \$200 Epson 3170 scanner and a \$200 Nikon 35mm camera are tough for any digital camera beat.

So, if my printer is only 8.5" x 11", why did I buy a scanner with 3600 dpi? Two reasons. First, a high-resolution scanner allows me to scan a small area of an old photo and greatly enlarge it. I can take a 4"x 5" photo of a wedding and crop it down to a headshot of a single person. Second, I have a lot of 30-year old slides I wanted to scan. Slides are very small; you need a much higher resolution scan to get a decent sized print. I scanned a slide and got a 4171 x 2613 pixel image. I can crop the image and still get a 10" x 8" print. If you are really serious about photography, you get a special slide scanner, like a Nikon.

## Printer Resolution

Is there any advantage to higher resolution printers? It depends on a lot of factors. A lot of professional high-resolution image setters max out at about 1200 dpi. Some go as high as 3600, but most people can't tell much difference. Pros use magnifiers to really look close. But at arm's length, most people can't tell the difference between a good 300 dpi print and a good 1200 dpi print. If you don't get too close, you can get away with 150 dpi, but that's pushing it.

## Are all printer dots the same?

No. Some printers can mix ink on the same dot to achieve a wide range of colors for each dot. Other printers can't mix the ink on a per-dot basis, and use a process called dithering. Look close at a newspaper. You'll see the photographs are made of various size dots of black ink. If the dots are small enough for a given viewing distance, your brain blends the dots with the white page and creates an illusion of gray shades. This is known as "dithering". Magazines are printed with a process known as "four-color". They print four separate color images (black, cyan, magenta and yellow) with separate dots, and your eye perceives this as a full color image.

Early ink-jet printers did the same thing, and created horrible images. A pixel from a scanner or digital camera could be any of 16.7 million colors. But the printer could only print one of four colors for each dot. So if you tried to print a 300 dpi image at 300 dpi, the printer would pick the closest ink color and you had a rotten print. But using the principle of dithering, you could print at half the printer resolution, printing each pixel with four printer dots (2 dots wide times 2 dots high). The eye would blend those four dots, creating the illusion of 16 colors. Printing at one-fourth of the printer resolution created the illusion of 256 colors. To print a 300 dpi image, we needed printers with at least 1200 dpi to get an adequate image. Not good, just ok. When HP first came out with their 36" wide DesignJet 600 (designed for printing line drawing), customers complained that large image prints were ugly. I suggested they

print at 150 dpi, not 600. They thought I was nuts, but when they tried it they were amazed.

Manufacturers began to develop better printers that could drop multiple color inks on the same spot before the ink dried. This caused the inks to mix, giving the ability to truly have dots of more than just 4 colors. That was when “photo-realistic” ink-jet printers became a reality. Newer printers now use 6 (or more) color inks for even better color fidelity. Once you have a 6-color 1200 dpi printer, there’s not much point for non-professionals to spend more money. HP has 6 color 1200 dpi printers for about \$100. You can get better than that, but the quality curve starts to flatten after that. Pros will still spend more money for larger print size, archival quality, the ability to color match, and other things they need.

What am I using?

Digital Camera - Olympus Camedia C4040, 4 mega-pixel

Film Cameras- Nikon F, Nikon FM, Leica IIIc

Scanner - Epson Perfection 3170 (3600 dpi optical with built-in slide scanner

Printer - HP Deskjet 5550 (4 or 6 color, 1200 dpi)

Software - Photoshop, Fireworks, various plug-ins.

How do I know all this stuff?

I used to sell 36" wide scanners and printers, was a professional photographer, and have been involved in photography and computers for over 30 years.

## Backup

The primary goal of any sort of maintenance is to keep whatever you are maintaining functioning properly. Although maintenance is your best bet on keeping your Mac a secure place for your information and projects there will always be the chance of major unforeseen problems or an accidental deletion of files. At its simplest, a backup is just another copy of your files that you can return to if there happened to be a problem with the original.

Really there are two options when thinking about backups. The first is to keep a backup of absolutely everything on your hard drive. Although this is the only way to make sure that you will have anything you might need in case there is a serious problem, you will need a considerable amount of storage space and some sort of backup utility to keep you from having to backup the your entire system when only a few items may have changed. The second option is to only backup the specific data files that would be most difficult or impossible to replace. Examples of these files might include your email database, your Quicken data file, contact lists, browser bookmark files, specific preferences, etc. Choosing only a few files to back up can be as easy as dragging them to a plain old floppy to make a copy. Just backing up the few essential files might provide enough security to help you sleep better at night you do run the risk

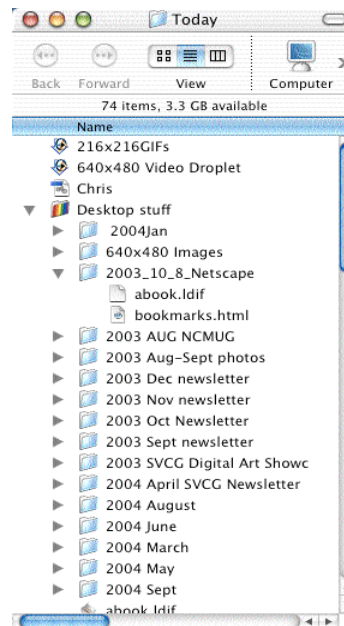
of forgetting a certain file you might later realize you needed. If for some reason your drive did suffer some catastrophic problem, you would need to reinstall your system and all you applications from scratch. Although just backing up specific files would provide the security of not having to recreate those files, you aren't protecting all the time and energy you have put into installing and configuring your Macintosh. A future MacTip will discuss backup on the Mac.

Regardless of the approach you take, doing some sort of backup is an essential part of maintaining your Mac. Just do it! You'll be glad you did.

### Organization and Cleaning

The first thing to think about is organization and cleaning. When taking your periodical look at your Mac, the best place to start is to take a quick run through your hard drive and put files in their proper place. Deleting unneeded files, putting stray files in their place and emptying the trash is a great place to start. If you are anything like me, after a month you end up with quite a pile of file on the desktop and elsewhere. Especially those who download all the latest updates and utilities from the internet will receive great benefit from occasional filing and removal of the files that build up. This may also be a good time to clean out your Web browser's cache folder (usually found in the 'Preferences' folder in the 'System Folder'). Manually cleaning it out can head off problems that can get in the way of your web browser operating properly. Other items that might also be included in this section is deleting old email, cleaning up your contact databases, or organizing your web browser's bookmark file.

This is also a good time to consider organizing your computer workspace too. Personally I have a much easier time keeping my virtual desktop organized than my physical desktop.



You would not be happy to lose all this data you have worked on over the past few months would you?

I use my CD-burner frequently. Every time I download images from my digital camera, I burn a disc, sometimes two to archive my data. Each monthly newsletter, financial, and database data are backed up regularly. I burn in \_sessions\_. That way I can burn to a CD several times rather than using it once. Frugal and smart!

The North Coast Mac Users Group & Apple Macintosh turn 20 together . . .

# iMagine

the next 20 years

  
**Mac Computer Expo**  
Saturday September 18th  
9:30 am to 3:30 pm  
Santa Rosa Junior College  
*(in the Cafeteria/Student Lounge)*



**3 Great Raffle Prizes!**  
2 4th Generation 20GB iPods & an iBook  
Tickets: \$5 each or book of 5 for \$20

## Sonoma Valley Computer Group Membership Application/Renewal Form

### New Applicant

Use information below

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Home Phone: \_\_\_\_\_

Work Phone: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Send  \$20 (individual)  \$30 (family) check to:  
Sonoma Valley Computer Group  
POB 649  
El Verano, CA 95433

I give permission to use this info in the club roster which  
is for members only

### Renewal (expiration date on label)

Use the name and address label

Platform:  Mac  PC  WinNT  
Operating System:  OS 8x  Win3  Unix  
 OS 9x  Win95  Linux  
 OS X  Win98  WinME

Computer Make/Model: \_\_\_\_\_

How did you hear about SVCG?

class  club member  newspaper  newsletter

User Level:  Novice  Intermediate  
 Advanced  Expert

Take newsletter online vs. by mail? YES\_\_\_ NO\_\_\_



Sonoma Valley Computer Group  
POB 649  
El Verano, CA 95433

Postage

## Topics:

- Tips 'N Tricks on  
Printers and Printing

Date: Saturday, 9/11/2004

Place: Sonoma Public Library  
755 West Napa Street

Time: 9:30am to 11:30am

Place Label  
Here

# Sonoma Valley Computer Group Newsletter



Apple User Group

for Mac and Windows Users

