

# User Friendly

November 2002



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Tuesday December 10, 2002	
Tuesday January 13, 2003 ♦	

## LACS General Meeting Holidays with Microsoft Photographers, Golfers and Gamers Presented by Richard Katz

**Tuesday November 12 7 P. M.  
Fellowship Hall, 8065 Emerson Ave., Westchester**

There's something for all of you. Live demonstrations will include Picture It! Digital Image Pro, Tablet PC, Pocket PC and several games -- Links 2003 and Age of Mythology.

In addition, there'll be some tips and tricks about Windows XP.

We'll also see the new Tablet PC. With its own version of Office XP Professional, it allows use of either a keyboard or a pen to enter information. Then, there's the Pocket PC with slots for SD Secure Digital I/O, Compact Flash memory, modem cards, 802.11b wireless networking and BlueTooth cards. Wireless connection will be demonstrated.

Richard Katz returns to his roots in LACS to present this program. It promises to be interesting and fun. Come and learn with us. Bring a friend (or two or three). It will be an interesting evening.

NOTE: The usual "computer forums" for beginners and advanced users start at 6 PM. Information: (310) 289 7177  
<http://www.lacspc.org> ♦

## October Meeting Report

by **Stephanie Nordlinger, Edie Ditmars and Fred Kong, LACS**

On October 8, Bruce Fries, an author and expert on using the computer as a music playing and recording device, spoke on "Your Computer as a Music Playback Device or Jukebox."

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## Election Results

Our election results were somewhat unusual, but actually worked out well. The ballot indicated that members should vote for officers for the year 2003 and for three directors for two-year terms (2003-04). **Charlotte Semple** was re-elected President, **Lee Freehling** was re-elected

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**(LACS ELECTION RESULTS)***(CONTINUED FROM PAGE 1)*

Secretary, and **Joe Clark** was elected Treasurer. The office of Vice President remains open as no qualified candidate agreed to run.

One candidate for the board of directors was a clear winner: **Charlie Semple**. However, three members tied for the other two openings on the board. The current Board, after much discussion and consulting the LACS Bylaws, decided that it was permissible and the best solution to increase the board by one member for the next year. By electing three instead of four directors next year, each of the new directors will have a two-year term, and the board will revert to its current size in 2004. Thus, assuming no resignations, LACS will have eight at-large directors in 2003 and return to having seven in 2004.

The other newly elected new board members for 2003-04 are **Dick Harmetz, Fred Kong** and **Paul White**. ♦

## **LACS Member Elected Student Body President**

LACS Member Jennifer Waller Solis was recently elected Student Body President of Belmont High School, the largest high school in the nation, even though she is only a junior. We don't have many high school members, but they are quality folk. She is also Student Co-chair of the Alliance For Neighborhood Schools, the Los Angeles campaign organization working for passage of state and local school bond issues. ♦

**(OCTOBER MEETING REPORT)***(CONTINUED FROM PAGE 1)*

He showed us how to record to a hard drive from old 78 or 33 vinyl records (LPs), cassettes and tapes and then how to burn (record) the music onto a CD that you can use in your computer or elsewhere. In the process, you need to use software to clean up pops, clicks, and hiss. You can convert all audio recordings from an analog to a digital format. An 80 GB hard drive costs only about \$100 now. Since high capacity hard drives are cheap, space and money are no longer a barrier to recording many minutes of music onto a hard drive and CDs.

The first digital format available to the average consumer was the "redbook audio" CD, from the early 1980s. Using that format, a 4-minute song takes 40 MB of space! Such a CD will hold 74 minutes of music or about 20 songs.

MP3 is the current standard for compressing audio. Using it, 40 MB of data is compressed to 3-4 MB. This allows much faster downloads, and you can put more music on a hard drive or CD. Up to 120 hours of music can be put on a Palm-sized device called an MP3 player.

**RECORDING MUSIC**

Music on a CD is digital and can therefore be copied to a hard drive. Mr. Fries uses *EZ CD Recorder* software to record music to a CD. An 8X CD burner (recorder) takes 10 minutes to record 70 minutes of music. With a faster burner, it may take only 10-

15 minutes to record 12 hours of music on a CD. (This excludes the preparation of the music, determining the order, etc.)

"Redbook" audio refers to the international commercial CD standard, which can be played anywhere, on any device. Compressed music CDs can't be played on older CD players, but they can be played on computers, MP3 players and other devices. The Apple iPod holds 1,200 songs. Some newer car audio systems (e.g., Kenwood) let you play MP3 CDs. The MP3 standard allows audio recordings to take up less space. Less significant information is omitted, including sounds you wouldn't ordinarily hear because something else would mask them.

MP3 files go onto inexpensive data format CDs. You don't need to buy the more expensive "Music" or "Audio" CDs, which cost more because their price includes a tax for music copyright holders. Some CD recorder brands do better with some brands of CDs. If it works, stick with it. He likes Imation and Teac. But even cheap CDs only have problems about 10% of the time. Fries used only two small speakers on stage B but produced great sound. He demonstrated various copying and editing tasks. You can put a CD in that drive and copy any or all of it to your hard drive. If you are copying from a record player or cassette deck, you attach a cable from its "record" or "output" to the line input port on your sound card. The cable has 2 RCA connectors (red and black plugs, also known as phono plugs) and can be bought at Radio Shack for \$4 - \$5.

Then start the device and play whatever you want to record. The playback level has no relation to the recording level. Set the recording level high (0) to get the most information. Then click Record in *CoolEdit* and then Play on the source device. Stop in the reverse order: source first, then the recording device. In this way, you will get the entire recording. You edit out silence, hiss or other unwanted information later. Compression is only needed to save space; it is not necessary to record to a CD or a hard drive. Most sound cards have a microphone input jack that you can use with a microphone for voice additions.

#### SOFTWARE

Fries recommends *Cool Edit 2000* software by Syntrillium Software to record into your computer via its sound card. There are two versions, a free trial version and a full \$69 version. It also has plug-in programs including an advanced Audio Cleanup that costs \$49 or \$50. *CoolEdit* records into memory as an uncompressed audio stream and lets you clean up clicks, pops and hiss. Then the file is saved as a .wav file or a compressed MP3 file.

You can use software to adjust numerous things in your music files. Voice can take a lower sample rate and mono and 8-bit settings, which cuts the file size considerably. You can erase a period of silence at either end of a recording. You can “normalize” recordings to adjust loudness of one recording to match your other songs, so that they all play at about the same volume. Normaliza-

tion preserves the “dynamic range.” The Professional version of *Cool Edit* has more options, e.g., re “peaks” control. Fries demonstrated two types of “fade in” and “fade out”: quick and slow.

You may want to experiment with applying Noise Reduction. You lose a little of the source information when it’s applied. If you can sample uniform background noise (e.g., an air conditioner) and then take that out of the entire clip, your music will sound better. An “Undo” command is available if you don’t like a particular result.

#### MISCELLANEOUS

In response to a question, Fries said that vinyl is definitely not dead; it is used for quality of sound as well as to manipulate audio (think “rap,” “hip-hop,” soundtracks).

A free download program, WINAMP, plays music through a PC. The term “.wav file” really means “PCM .wav file.”

As to copyright issues: consider the source. If the musician is relatively unknown and you get the music free from his or her website, it’s intended that you get it without payment. He’s promoting himself. If the song is popular and from a name musician or band and you are getting it from a third party site, there may well be a copyright infringement issue.

Is there a maximum distance one may run cables from a computer to a sound system? No. If one uses the correct type of hookup cable(s), considering the proper size, impedance match and function

of the components, there would be no practical distance limits from room to room within most homes

However, Fries suggested that, instead of stringing cables between rooms, you install a separate computer next to your sound system for the sole purpose of recording audio from various sources and playing it back or sending it to others. This could apply also to video as well. This computer need not be equipped with some of the usual components: a stripped-down Pentium class computer (100 - 133 MHz) with a large hard drive for lots of storage would do. A 486 will play uncompressed .wav files in real time.

Bruce Fries is the author of *THE MP3 AND INTERNET AUDIO HANDBOOK*. It can be read free at his website, [www.mp3handbook.com](http://www.mp3handbook.com). Print copies are available from Amazon, Barnes & Noble and Borders at \$24.95 (list). The user group price is \$20 plus \$2 shipping from [Orders@TeamComBooks.com](mailto:Orders@TeamComBooks.com). He lives in or near Washington, D.C. and is making a tour of various Southern California computer user groups. ♦



## From the Workbench © Tune up your PC

By **Carol Theodore**, LACS

Say you bought a Dell or any other off the shelf system about a year ago. It has 128 MB of RAM and a 40 GB hard drive. The CPU is a Pentium 4 1.5GHz and it's running Windows 98 SE. It should be pretty fast, right? Not necessarily.

### RAM

First, let's start with the rest of this system's configuration. The system has built in video on the motherboard. This means that the video is "sharing" that 128 MB of RAM installed on your system. That is definitely going to slow down some operations on your computer. You should add another 128 MB of RAM to your system. RAM is relatively cheap and should help your system run better.

### WINDOWS SWAP FILE

Another possible slowdown could be that 40 GB drive. Chances are your drive has only one partition. The first thing to do is get Partition Magic Version 7 or higher. Install the software and create at least one partition for your Windows Swap File. To figure the size of this partition, multiply the amount of RAM by 2.5. If you have the space, multiply by the RAM you think you'll have after you've added more. This is not an exact science. Once you've created the partition, reboot the system. Now you'll have to change your Windows Swap File settings. Windows default settings let Windows handle the swap file. This means it's on

the C drive. Go to Start, Settings and Control Panel. Double-click the System icon and click the Performance tab. Then click on the Virtual Memory button. There are two little circles and one of them has a dot in it. More than likely it will be next to the line that says: "Let Windows manage my virtual memory settings". All you have to do is check the circle that has the line: "Let me specify my virtual memory settings". Make the minimum and maximum settings the same (using the figures you got when you multiplied your RAM by 2.5). Reboot your machine and you are done.

### DEFRAG

Another thing you should do regularly is defragging your hard drive. Windows 98 has a defrag program; however, it doesn't always perform well, and you may have to repeat the process several times. If you have Norton System Works or Norton Utilities for Windows 98, you can use the Speed Disk feature. This I find is more effective than the defragger bundled with Windows 98. Depending on how often you use your computer, you should defrag an average of every 2 to 3 weeks. Even a 2 or 3 percent of fragmentation is enough to slow your system.

### STARTUP

The last item to look for is startup items that you don't need. Startup Cop or Startup Manager, can be helpful. You can also check your taskbar and also use msconfig from the Start, Run menu. Click on the Startup tab and scroll down the list looking for likely items you

may not need. Don't uncheck anything that Windows needs.

Using these methods to give your computer a "tune-up" can help make it run faster and more reliably.

*Carol Theodore is an LACS member and owner of Mycroft Consulting specializing in computer consulting for businesses and individuals, solving an array of hardware and software problems. She offers a special rate to LACS members. She can be reached at 310-659-0604. Her e-mail address is: cgtheodore@earthlink.net ♦*



### NOTICE

The columns, reviews and other expressions of opinion in *User Friendly* are the opinions of the writers and not necessarily those of the Los Angeles Computer Society. LACS became a California non-profit corporation on July 17, 1991. ♦

## Part II UNDERSTANDING CD-R & CD-RW TECHNOLOGY

*This excellent article covers all aspects of CD-R and CD-RW technology, but it is too long to publish in one article. Part Two is printed below with the remaining part to be published in the next issue of User Friendly. A Table of Contents of all three parts has been included at the conclusion of this part. — Editor*

by **John C. Lee**, 1000 Oaks  
Personal Computer Club

### CD-R AND CD-RW SOFTWARE

The first comprehensive software for recording and rewriting CD was developed by Adaptec. Recent versions of the software are made by Roxio, a subsidiary of Adaptec. A year or two ago, a German software company, named Ahead Software GmbH, made its debut in this country by offering a CD-R and CD-RW software called Nero Burning ROM. The software is similar to Roxio software in most respects except some minor differences in features. Quite a number of drive makers have switched to the use of Nero software with their drives mainly for cost reasons, I guess.

The following discussion will be mainly directed to Roxio software, but the mechanics of the processes are equally applicable to Nero software. The Roxio software consists essentially of two separate programs: Easy CD Creator for recording and DirectCD for re-writing.

### EASY CD CREATOR

You can use this program to perform recording of audio CD and computer data as well as reading computer data from data CD or ripping (audio extraction) audio files from an audio CD. Clicking either the Audio or the Data button in the initial menu opens the program. The main display of the Easy CD Creator program is an Explorer type window, with the directories and subdirectories shown in the top left pane and folders, files or music tracks shown in the top right pane. You can select from this top pane data files or music tracks that you want to record by clicking the ADD icon on the toolbar or dragging and dropping them to the lower right pane. The lower left pane lists the file folders and icons for the type of CD you select to create. You can also rearrange or change the recording order of these files or music tracks by dragging the selected file to the position where you want it to appear in the lower right pane.

You can click the arrow next to the NEW icon to display a drop-down menu. The menu will list the different types of CDs you can select to create, including Audio CD, Data CD, Multi-session Data CD, CD Extra, Mixed Mode CD and Bootable CD. Before we delve into details of these types of CDs (in Part III), we will first discuss some of the other aspects of the Easy CD Creator program that are pertinent to create these types of CDs.

### DATA AND AUDIO FILE FORMATS

When computer data or audio

tracks are recorded to a CD-R or CD-RW, they assume file formats that may not be supported by all types of drives or environments. In the following we will discuss some of the more important CD file formats used in the Easy CD Creator software program.

**ISO 9660:** This format is used for creating Data CD. The CD in this format can be read in CD-ROM and DVD drives on platforms including DOS, Macintosh, OS/2, Windows and UNIX. However, the ISO 9660 standard limits the directory and file names to not more than 8 alphanumeric characters and extension to not more than 3 characters as in DOS systems.

**Joliet:** This is the format used to record most Data CDs and is the default option in Easy CD Creator software. You can use file names up to 64 characters in length. Joliet can also record the associated DOS-standard name (8+3 characters) for each file, so that the CD may be read on DOS systems or earlier versions of Windows

**CD-DA:** CD-DA stands for CD-Digital Audio format with a file extension of .cda. It is the first standard for the audio CD that can be played in all CD-ROM, DVD drives and Audio CD Players. All audio tracks or audio files are recorded to CD-R or CD-RW media in this format. Music CDs generally belong to this category. It has the CD digital sound quality with a bitrate in the same range as the Wave file. Wave is the equivalent format to CD-DA when written into the hard

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## ***(UNDERSTANDING CD-R & CD-RW TECHNOLOGY)***

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drive. Bit rate (bitrate) is the amount of digital audio information recorded on a CD or hard drive in Kbits per second. The higher the bitrate, the better is the sound quality.

**WAVE:** Wave format with a file extension of .wav is commonly used for computer audio files. It is part of the general RIFF Standard (Resource Interchange File Format). It is an uncompressed audio format with a bitrate of 1411 Kbps, and hence has a large file size. The file can take up 10.5 MB space for each minute of playing time. Wave files can be recorded from the hard drive to audio tracks (with CD-DA format) using CD-R or CD-RW media in the CD-RW drive. A reverse process called ripping can extract audio tracks from an audio CD to audio .wav files in the hard drive.

**MP3:** MP3 stands for MPEG-1 Audio Layer 3. It is the most popular compressed audio format used for portable MP3 music players and for transferring audio data via the Internet. At an industry standard bitrate of 128 Kbps it retains almost the same CD quality as a Wave or CD-DA file, which means a reduction of file size to 0.96 MB for each minute of playing time. As with the Wave files, the MP3 files can be recorded from the hard drive to CD-R or CD-RW audio tracks. Similarly MP3 files can be extracted to the hard drive from audio CD tracks. Easy CD Creator software has plug-in encoders to extract audio tracks to Wave, MP3 or WMA files.

In some OEM versions of Easy

CD Creator, you can only extract to MP3 with bitrates less than 56 Kbps, which gives Stereo quality instead of CD quality. So you may want to elect an alternate approach by ripping the audio tracks to Wave files, and then converting the Wave files to MP3 files with higher bitrates using some other software. Some of the more sophisticated software such as RealJukebox Plus or Music Match is capable of encoding MP3 files with different fixed bitrates as well as variable bitrates (VBR). With VBR, more complex sections of a track, such as those with many instruments playing simultaneously, may require more "bits" of computer information to create a high-quality sound. These sections of a song are recorded at a higher bitrate based on the quality level you choose (that is, if you choose 128 Kbps, the most complex parts of your track are recorded at this bitrate). Less complex sections can be accurately represented using less information, and may be recorded at a lower bitrate. Hence the VBR will give further reduction in file size with hardly any detectable degradation in sound quality.

**WMA:** This format with an extension of .wma is mainly used by the Windows Media Audio Player for "audio streaming" on the Internet. A bitrate of 96 Kbps is the usual default setting, and its sound quality cannot match that of the MP3 format even at a bitrate of 128 Kbps. Like Wave and MP3 files, WMA files can be recorded to or extracted from the CD audio tracks.

There are several other audio file formats such as .mes, .lqt, .

au, .aif, .rm, .ra, .rmx, and .rmj. The last four of them are used by the RealNetwork Player, mainly for Internet audio streaming like WMA. I personally like to use the RealNetwork Player, because it usually delivers faster buffering on the Internet and better sound quality than the Windows Media Player.

### **CD WRITING METHODS**

Three ways of writing data or audio tracks to the CD-R or CD-RW disks are used in the Easy CD Creator program: Disk-at-Once, Track-at-Once and Session-at-Once. The method you should use would depend on the type of CD you are going to create. For Audio CD (or audio part of a CD Extra or Mixed Mode CD), a track is referred to as a music track or a song in the music CD; while for Data CD (or data part of CD Extra or Mixed Mode CD), a track is referred to as a stack of data that may contain one or a number of data files or folders. A session is referred to as a single continuous pass of writing without pausing. A session consists of a lead-in, data or audio tracks and a lead-out. The lead-in and lead-out areas signify the beginning and end points of a session. They are not part of the data, but contain information about the session itself.

**Disk-at-Once:** This method is used when writing a complete disk in a single operation without pausing (also in one session) followed by the closing of the CD. This means that file or audio data cannot be added later, even if the full capacity of the blank disk has not been used. This writing

method is used in creating Audio CD, Data CD or Mixed Mode CD.

**Track-at-Once:** This method is used when writing data to a disk one track at a time. More tracks can be added later if there is enough space left on the disk. The Track-at-Once method is sometimes referred to as Multisession. If you want to record data later after a session, be sure to leave the CD open by unchecking the Close CD button. Multisession Data CD uses this method. Make sure to set Mode 2, CD-ROM XA as the writing mode for Multisession CD. Otherwise some CD-ROM drives may not be able to read the Multisession CD.

**Session-at-Once:** This is a 2-session writing method used to create CD Extra format CD. The audio tracks will be recorded in the first session and the data will be recorded in the second. In the lower left pane of the main window CD Layout, you will see two folders: one audio and the other data. Click the first folder and add audio tracks to be recorded. Then click the second folder and add data to be recorded. Both sessions will then be recorded one after the other.

#### **DIGITAL AUDIO EXTRACTION (RIPPING)**

Audio extraction is a reverse process to Audio CD recording. You can select one or a number of music tracks (CD-DA format) from an audio CD and convert them to Wave, MP3 or WMA files on the hard drive, by clicking the Extract button on the display window of the Easy CD Creator pro-

gram. On the Extract dialog box, you can also choose the bitrate for the extracted files.

These audio files can only be played using audio programs such as RealJukebox Player, Windows Media Audio Player or Music-Match on the PC. Sometimes, you may want to store these files in a CD in their own formats. To record these audio files to a CD-R or CD-RW in their respective formats, you have to treat them as data files and use Data CD program to record them. If you use the Audio CD program, these files will all be converted back to music tracks in CD-DA format. Anytime you use Audio CD (or the audio portion of CD-Extra or Mixed Mode CD) to record audio files or audio tracks to CD-R or CD-RW media; they will always be recorded to audio tracks in CD-DA format.

#### **IMAGE FILE RECORDING**

Normally, you record a CD from a source drive (CD-ROM or DVD) to a target CD-RW drive. But if you only have a single CD-RW drive, you can still create a CD using the CD Image (an option in the File menu). First you insert the source CD (data or audio) in the CD-RW drive to create a CD image file (in Windows Temp directory of the hard drive). A CD image file is an exact representation of the whole set of data as it appears on a CD, in terms of both content and logical format. This may be an ISO 9660 image (adhering strictly to the ISO 9660 standard), or some proprietary format such as the .cif format used by Easy CD Creator. After the image file is created, you will be prompted to

remove the source CD and insert a blank CD-R or CD-RW media. You can then record the content of the image file to the CD-R or CD-RW disk.

If you intend to make a number of copies of CDs from a single source CD, it is more expeditious to employ the image file recording instead of recording from the source CD individually. After you record the first copy, you should save the image file. Subsequent copies of CD-R or CD-RW disk can then be recorded directly from the saved image file in the hard drive, without having to recreate the image file.

DVD drive has a limited maximum speed of 16X. In some cases you may be able to obtain a faster recording using the image file than using DVD as a source drive. Creating an image file is usually carried out at the CD-RW drive reading speed, and the recording from the hard drive is usually carried out at the CD-RW drive recording speed, which may be higher than the 16X DVD speed. In fact, some RW drive makers recommend the use of the image file recording instead of recording from a source drive, because the image file recording is more reliable and free from the buffer under-run problem.

#### **SYSTEM TESTS**

The main purpose of the system testing is to find out how well your system's components: CD-ROM, DVD, CD-

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## ***(UNDERSTANDING CD- R & CD-RW TECHNOLOGY)***

*(CONTINUED FROM PAGE 7)*

RW and hard drive can work together. The Easy CD Creator contains three tests. The Data Transfer Rate test calculates the average speed at which data can be read from the source drive. The Audio Extraction rate test determines the average rate at which digital audio information can be read from the source drive (CD-ROM, DVD or CD-RW drive) to the hard drive. The Recording test determines the recording speed at which your system can support. You can perform the first two tests, when you first acquire your CD-RW drive to get some idea about the transfer rates and extraction rates of each of your drives, but these two tests are not essential for later CD recordings.

The Recording test is an option you can choose when you create a CD. The test actually performs a simulated recording to determine and set the speed at which the CD should be recorded, before the final recording is carried out. Hence, the whole process including the test and the actual recording will take twice as long as if you perform the recording without the test. You can skip this test to save the time by setting the recording speed yourself, once you know the speed your system can support.

### **CD COPIER**

CD Copier is a subprogram of Easy CD Creator. It allows you to make exact copies of Audio CD, Data CD, Photo CD, Video

CD, CD Extra or Mixed Mode CD (results are not certain with Mixed Mode CD). CD copying should all be carried out using the Disk-at-Once writing method. You can also create an image file to copy CDs with the CD-RW drive only or to make multiple copies, as described in the section of Image File Recording. To create an image file you have to select the option of Advanced>Disk Copy>Copy Source CD to the Hard Drive First in the CD Copier window.

### **DIRECTCD**

DirectCD is a program that allows you to write files directly to a CD-R or CD-RW disc in much the same way that you copy files to a floppy diskette, a removable drive or another hard drive. DirectCD lets you read and write your files directly to your CD with any software application that can read from and write to a drive letter. Some examples include:

Software applications, such as Microsoft Word, when you use the Save or Save As commands

Windows Explorer when you erase files or drag and drop files to and from the CD-RW disk

The Windows Send To command

The DirectCD program uses a file system based on UDF v1.5 and this file system gives you a drive letter access to your CD-RW drive. The program also uses packet-writing technology to write data to the CD-R or CD-RW disk. Using the

packet writing method, data can be written in much smaller chunks than are possible with the current Disc-at-Once and Track-at-Once methods used in Easy CD Creator program. Some CD space (roughly 100MB) will be assigned and used by the file system. So in a 650MB disk, only 550MB is usable space for writing data.

DirectCD includes a Wizard that guides you step-by-step through the process of preparing and ejecting CD-R and CD-RW disks. It also includes a data compression feature that allows you to copy more data files to the disk.

Before you can write data to your CD, you must first format the disk, as you would have to do with a floppy diskette or a hard drive. When you insert an unformatted blank CD-R or CD-RW disk in the RW drive, the Wizard will automatically prompt you to format the disk. After the formatting, the Wizard will cue you that the disk is ready for use. If you are formatting a CD-RW disk that has been formatted before, you can select either Quick format or Full format in the Format Disk window. You can also select the Compression option if you are using a CD-RW disk and you want to enable data compression on the disk.

DirectCD will work with both CD-R and CD-RW disks. However, there is no real advantage of using CD-R disks with the DirectCD program, because once the data is written on a CD-R disk, it is burned on it permanently, and you cannot erase any part of the con-

tent. "Deleting" files from a CD-R disk only makes the files invisible to the file system but does not free up any space on the disk for re-writing as in a CD-RW disk

A word of caution: Once a disk is formatted in DirectCD, it can only be used with the DirectCD program in the CD-RW drive. It can neither be unformatted nor used with Easy CD Creator program.

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Part III of this article will be in next months User Friendly reprinted from July 2002 Nibbles & Bytes Journal of the 1000 Oaks Personal computer Club and from its Web site [www.topcc.org](http://www.topcc.org) By John C. Lee - [johnlee@adelphia.net](mailto:johnlee@adelphia.net) ♦

## Welcome To You All

#### NEW MEMBERS (5)

Diane Gamble  
Jack Koonan  
William Michael  
David Wallace  
Tom Wass

#### RENEWING MEMBERS (17)

♥♥ Newton Bernstein  
♥ Louis Colen  
Bobbi Gold  
George Gourrich  
Richard Harmetz  
John Hoffman  
Joel Kibbee  
♥ Roberta Lang  
♥ Annette Needlman  
Jack Peters  
Charles Rider  
Samuel Rotenberg  
Wentzle Ruml  
James Smith  
Rick Sprinkle  
Lavonne Swyter  
Dona Williams  
♥ Contributing  
♥♥ Benefactor ♦

## Reminder — Soon Time to Renew

Members may send in their check for renewal at any time to :  
Renewals LACS  
10410 Palms Blvd. PMB 13  
Los Angeles, CA 90034-4873

#### DUE TO RENEW IN NOVEMBER

Ader, Mel  
Atha, Frank  
Bain, Floyd  
Barela, Gil  
Bohannon, Loye  
Burns, Bruce  
Cirlin, Ros

Eiermann, Robert  
Francisco, Kent  
Ganz, Bill  
Gold, Michael  
Hughes, Bill  
Kameran, Cora  
Katz, Ephraim  
Kohn, Roger  
Levadie, Meyer  
Piltzer, Herbert  
Polgar, Gene  
Riordan, Ida  
Rungaitis, Madeleine  
Schwartz, Jules  
Silverstein, Elliot  
Steinberg, Richard  
Wirrie, Claudette

#### Due to Renew in December

Decamp, Jack  
Flores, Nina  
Garber, William  
Gross, Herbert  
Kincaid, Nilan  
Lang, Zane  
Mechaber, Douglas  
Morgan, Robert  
Newlander, Roberta  
Orfirer, Mark  
Serling, Carol  
Springer, Karl  
Weinberger, Elizabeth  
Wilder, Jack  
Youkeles, Lee ♦



## Tips 'N Tricks

Compiled by **Charlotte Semple**, LACS President

### TASKBAR

An easy, simple way to find your taskbar, particularly if you have moved it and cannot remember where, is to press Ctrl-Esc, together, and it will pop up from where you placed it.

### TIME AND DATE STAMP

To place a Time and Date Stamp of a Notepad file just by opening it, create a blank text file with LOG in the first line. Press enter to insert a carriage return after the first line, then save and close the file. Any time you open the file with Notepad, it will place a time and date stamp at the end of the file, positioning the cursor on the line below.

### PRINTING? STUCK IN LINE?

Nothing can be more frustrating than having a print job stuck in a print queue. When this happens, open a command prompt and enter NET STOP SPOOLER. Wait until the service stops, and then enter NET START SPOOLER. Your printing jobs should start printing in good order.

### FREEING DISK SPACE

By default, print jobs sent to a printer are temporarily placed in a file folder on your hard drive. Usually, these files are deleted when that job has been printed. However, sometimes things go wrong and files can be left on the hard drive. You may safely delete any files found in that folder by going to: %systemroot%\system32\spool

\printers and deleting the files. %system% is usually c:\winnt, or, c:\windows. Do take a look in there every now and then when you need to free disk space.

### DEFAULT DOUBLE SPACE?

Click the NEW button to open a file. Choose Format + Style. Slick on Modify, then click Format and choose Paragraph from the drop-down menu. In the Indents and Spacing tab, set the Line Spacing to Double, then click OK. Select Automatically Update AND Add to Template. Click OK. There you are. Default Double Spacing.

### INSTALLING A NEW HARD DRIVE

This is easier than one would think! If you are tired of trying to uninstall old programs in order to fit new ones on your hard drive, add a second hard drive instead and keep your older programs. Hard drives are relatively cheap and easier to install these days. Here is a site where you can get advice on the type of drive to buy, plus complete installation and formatting instructions: <http://www.cnet.com/Digdispatch/dispatch449.html>

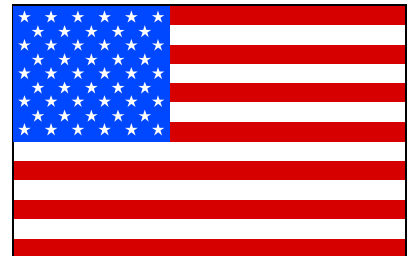
### LOOKING FOR SOMEONE?

In Communicator, select the Communicator drop-down menu and choose Address Book to open the Address Book window. Enter the name of the person you are looking for in the text box. Click the name of the directory you want to search (such as Infospace or Netcenter) In the left pane. Click the Search For button. In a few seconds a lit of matching names and near matches appear in the

address window. If your old love, or pal, is not on the list, try another directory. At least you've made a start.

### INSTALL/UNINSTALL TAB

A neat easy way to remove programs from the Install/Uninstall tab of the Add/Remove Programs Properties dialog box is to use the Tweak UI Power Toy. Open the Control Panel, double click Tweak UI, and select the Add/Remove tab. Select the item you'd like to remove from the Install/uninstall list, click the Remove buttons, then click Yes to confirm you decision. Repeat this for each item you wish to remove. Then click OK. To obtain the Tweak UI Power Toy go to; <http://www.pcworld.com/r/tw/1%2C2061%2Ctw-0405%2C00.html> and download power-toy.exe to the folder of your choice. Double click this file to extract its contents, then right click tweakui.inf and select Install. You can now open Tweak UI by double clicking its icon inside your Control Panel. ♦



### November 2002 into December 2002

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				<b>1 November</b>	<b>2</b>
<b>4</b> Board meeting 7 PM sharp	<b>5</b> Daytime SIG 12 PM (lunch) Office SIG 7:	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>11</b>	<b>12 General Meeting 7 PM Forum 6:00 PM</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>
<b>18</b>	<b>19</b> Daytime SIG 1 PM Hardware SIG 7 PM	<b>20</b> e-mail/ Internet SIG 7 PM	<b>21</b> Member- ship Commit- tee 7 PM	<b>22</b>	<b>23</b>
<b>25</b> Digital Photo SIG 7 PM	<b>26</b> Beginners SIG 7 PM	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>
<b>2 December</b> Board meeting 7 PM sharp	<b>3</b> Daytime SIG 12 PM (lunch) Office SIG 7:	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

#### SPECIAL INTEREST GROUPS (SIGs)

SIG meetings are run by and for LACS members. Visitors are welcome to attend up to six SIG meetings (three of the same SIG) before joining LACS. To inquire about a SIG, please call or e-mail the contact person in advance. SIG Coordinator: Vacant, sig.coord@lacspc.org.

SIG	Contact	Telephone	When and Where, Notes
After Meeting	Cap Kierulff	310-472-9206	Dinah's Restaurant on Sepulveda, southwest of Centinela.
Beginners	Dorothy Miliman	310-473-1391	4th Tuesday, 7 PM. Cal. Fed. Community Room (basement)
Computer Forum	Beginners Welcome		2nd Tuesday, 6:00 PM before General Meeting. Front of hall.
Daytime	Cap Kierulff	310-472-9206	First Tuesday, 12-1:30 PM, Golden China Restaurant, L.A. capk@juno.com
Digital Photo	Helen Karagozian	310-454-3426	Third Tuesday, 1-3 PM, Felicia Mahood Center, W.L.A. helenk2@earthlink.net.
Genealogy	Leah & Joe Clark	310-677-2792	4th Monday, 7 PM American Legion Hall, 5309 Sepulveda Blvd., Culver City
Hardware	Charlie Semple	310-398-5052	Second Thursday, 7 PM once a quarter at the Clark's home (fourth Thursday, this month only) lclark@ucla.edu.
Internet/e-mail	Patsy Bellah	310-280-0951	Third Tuesday, 7 PM, Cal. Fed. * csemple93@earthlink.net
Investment	Stephanie Nordlinger	323-299-3244	Third Wednesday 7 PM at American Legion Hall, 5309 Sepulveda Blvd., Culver City
Membership	Bert Stock	818-905-1756	TBA If interested, Call or e-mail pastpres@lacspc.org.
Office Suites	George Wolkon	310-459-2671	Third Thursday, 7 PM. Call or e-mail 74274.2312@compuserve.com, for location.
			First Tuesday 7 PM. Cal. Fed.* wolkon.gbwwolkon@verizon.net

\* California Federal Bank Community room (in the basement), 12101 San Vicente Blvd. (at Saltair), Brentwood, \$1/meeting donation requested for room rental at Cal Fed and at American Legion Hall. ♦

### Members Helping Members

LACS members volunteer to help other members solve hardware and software problems by telephone during the hours listed below. Select the topic from the list and then call a person whose number is listed next to it. We hope that you find this free service useful. ***If you are experienced in a particular program or topic, please volunteer to be a consultant.*** To volunteer for this list or to make corrections, please e-mail editor@lacspsc.org or call Dick Smith at (323) 294-3441. More Quick Consultants are always needed. You can always decline or postpone a call if it catches you at the wrong time. You perform a valuable service and often learn something unexpected! ♦

Adobe Acrobat - 47	Microsoft Access - 48	Printing - 42, 43
America Online - 20, 44	Microsoft Excel - 7, 49, 51	Procomm + - 24
Ami Pro, WordPro - 14	Microsoft FoxPro - 27, 48	QModem, QMPro - 24
Basic - 8, 48	Microsoft Office - 41, 43	QuickBooks - 14, 37
C++ - 27	Microsoft Power Point - 49	Quicken - 14, 20
Communications - 24	Microsoft Publisher - 14, 32, 33	Speed Read - 24
Data Bases - 48	Microsoft Word - 9, 43, 49	Terminate - 24
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GoldMine - 41	Modems - 24	Unix - 48
Graphics - 33	Netscape - 43	Viruses - 46, 48
Hardware - 7, 41, 42, 43, 48	Networks - 7, 41, 48	Windows - 7, 32, 48
Internet - 43, 44, 45, 48	OLX - 24	Windows 95/98 - 7, 41, 43, 48
LA FreeNet - 14, 24	OnTime - 1, 20	WordPerfect - 1, 20, 33
Linux - 48	PhotoDeluxe, Adobe - 50	WordPro - 14 ♦

No.	Name	Daytime Phone	Eves/Weekends	From	To
1	Broido, Joe	310-829-3736	310-829-3736	9 AM-10P M	
7	Greenberg, Allan	310-576-1310	310-576-1310	10 AM-10 PM	
8	Heller, Elmer	310-839-9764	310-839-9764	9 AM-10 PM	
9	Hershman, Irv	310-397-9453	310-397-9453	11 AM-11 PM	
14	Kammerman, Cora	310-472-7487	310-472-7487	10 AM-8 PM	
20	Nordlinger, Stephanie	323-299-3244	323-299-3244	9 AM-10 PM	
24	Springer, Karl	310-645-3410	310-645-3410	10 AM-10 PM	
27	Rombouts, Tom	310-519-2941	310-519-2941	6 AM-11 PM	
32	LaVere, Hy	310-837-6517	310-837-6517	10 AM-9 PM	
33	Kierulff, Cap	310-472-9206	310-472-9206	9 AM-9 PM	
34	McDonald, Len	310-836-8698	310-836-8698	9 AM-10 PM	
36	Hage, Elias	310-815-8020	310-815-8020	9 AM-10 PM	
37	Ganz, Bill	310-360-7088	310-360-7088	9 AM-9 PM	
41	Engfer, Mark	N.A.	310-451-1942	5 PM-10 PM	
42	Theodore, Carol	310-659-0604	N.A.	9 AM-5 PM	
43	Semple, Charlie	310-398-5052	310-398-5052	9 AM-10 PM	
44	Lang, Bobbi	310-454-9903	310-454-9903	10 AM-5 PM	
45	Gibson, Merrill	310-785-9487	N.A.	9 AM-5 PM	
46	Martin, Todd	818-766-1151	818-766-1151	10 AM-10 PM	
47	Gold, Mike	N.A.	310-379-8321	6 PM-10 PM	
48	Flores, Alexys	N.A.	310-306-8403	8 PM-11 PM*	
49	Beckman, Loling	310-471-7893	N.A.	9 AM-5 PM	
50	Silverstein, Elliot	310-670-1544	310-670-1544	10 AM-10 PM	
51	Katz, Effie (Pager)	310-785-3313	310-785-3313	9 AM-10 PM	

\*Weekend: 3 PM-10 PM ♦

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Web Master	Jill Fox	310-472-3664	webmaster@lacspc.org
Changes	Karl Springer	310-645-3410	changes.form@lacspc.org ♦

#### USER FRIENDLY ADVERTISING RATES

Full Page	\$100	Discounts are
Two page spread	\$200	available
Half page	\$ 65	for
Third page	\$ 40	multiple
Business card	\$ 20	insertions.
Business card, Member	\$ 15	Just ask us.

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**Advertising Policy:** *User Friendly* accepts computer-related advertising on a space-available basis. Advertising insertion orders are due on the **FIRST** of the month before insertion. An image file or camera-ready copy (suitable for b/w offset printing) and **FULL** payment **MUST** be received by the Editor by the **TENTH** of the month. One month maximum credit or rerun for promptly reported errors. For further information, call or fax Stephanie Nordlinger at (323) 299-3244 or e-mail us at [editor@lacspc.org](mailto:editor@lacspc.org). ♦

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## Software for Review

by **Stephanie Nordlinger**,  
LACS

Members can get free software in exchange for writing reviews for *User Friendly* and our website. Be a published author! Almost anyone can write a good review, and we supply guidelines and editors to help you. Some products will make you more productive, while others are just for fun. Members wanting to review something make a deposit (usually a check) in the amount shown (the approximate list price of the product, without tax or discounts) that will be returned uncashed if you submit a printable review.

If you want to review a program shown below, contact the Product Review Coordinator (productreview@lacspc.org) or (323) 299-3244. If you would like to review another program and need a review copy, contact me and I will attempt to obtain one for you. All programs require a 4x or faster CD ROM drive unless otherwise specified. The editor also accepts well-written reviews of products you obtain by purchase, etc.

**Alpha 5 for Windows** from Alpha Software. This version of a major database program has been in development for three years and is designed to offer the functionality of MS Access with significantly greater ease of use and the ability to build applications much more rapidly. [www.alphasoftware.com](http://www.alphasoftware.com) (\$349)

**Advanced CATaloguer 2.3**, a cataloguer for all removable media files for Windows 95/98/

ME/NT 4.0/2000 and XP. It also performs file management tasks, Boolean searches, finds duplicate files on any drive, etc. Be able to access your CDs and other data through easily created databases. [www.evgenysoft.com](http://www.evgenysoft.com) (\$35)

Novosoft Inc.'s **Handy Backup 3.5** for Windows 9x/NT/2000/Me/XP automatically backs up critical data to virtually any type of storage including CD-R/CD-RW, remote FTP servers, local network drives, ZIP, JAZ, MO, HDD and floppy disks. Designed for a single computer or a network, it can be used to synchronize files between two computers. Its disk spanning option allows backups to be divided among several CD-R/W disks. Award-winning. Downloadable. <http://www.novosoft-us.com> (\$30)

**ACDSee 3.1 PowerPack v. 4.0** combines two image management programs: FotoCanvas and FotoAngelo. FotoCanvas is a fast, flexible photo editor with many corrective, drawing, selection and special effects tools. FotoAngelo helps you create multimedia slide shows and screensavers. <http://www.ACDSYSTEMS.com>. (\$80)

**Click'N Design 3d**. Are you creative? Create 2D and 3D text and texture mapping. All major CD Label templates are supported. Includes 100's of designs and over 5,000 photos and pieces of clip art. Includes some photo effects. <http://www.stompinc.com> (\$20)

**Screen Creator Deluxe, v. 6**. Why just look the Windows logo? Create complex professional quality screen savers quickly. You can add audio files for a background music

playlist. <http://www.individualsoftware.com> (\$30)

**XPlay** by Mediafour lets you plug an Apple iPod into a Windows computer and transfer MP3 music files back and forth, so that you can organize songs, artists, playlists and albums for on-the-go listening. Automatic synchronization is also available. Even data files and documents can be transferred to an iPod, which Xplay makes appear like a normal hard drive. XPlay was a finalist for Best of PC Expo 2002 (awarded by *PC Magazine*). <http://www.mediafour.com> (\$30) ♦



## Pegasus Mail — One Way to Avoid the Worms, Trojans, and Assorted Viruses That Plague Outlook and Outlook Express

by **Ron Ingraham**, SpaceCoast PC Users Group, Inc. From the SpaceCoast PC Journal, Feb. 2002

Having read about Pegasus Mail in one of Fred Langa's E-letters, I decided to give it a

try. I should mention from the git-go that this is a free program which has been in development since 1989. You may download it from their website: <http://www.pmail.com> Version 4.01 32-bit version for Win95/98/ME/NT/2000 and XP is 3.8MB. The 16-bit version for all Windows is 3.2MB. There are other utilities available at the site, including WSendTo PMail.

Pegasus Mail is an e-mail client that runs on computers using Microsoft Windows: by client, I mean that it interacts directly with the user, allowing mail to be sent, read, filed, printed and otherwise manipulated through a graphical interface. Probably one of the most feature-rich mail clients available, most users say that they find the program easy to use despite its richness. Small and fast, Pegasus Mail can be left running permanently on the workstation and includes powerful tools to notify the user when new mail arrives. I have only begun to discover all of the features available. The Help files are arranged similar to Microsoft's but are generally more useful. Depending on the topic, they constitute a tutorial for the program. I've copied the description below from their Website.

#### FEATURES:

- Pegasus Mail does all the basics of e-mail extremely well, and far more than that... This list is by no means comprehensive - it concentrates on the highlights.
- Mail filtering; Pegasus Mail pioneered this in 1991, and

it's still the most powerful implementation of automated rule-based filtering you'll find in a mail client.

- MailMerge allows you to create customized form letters to multiple recipients.
- Support for all major Internet mail-related protocols - SMTP, POP3, IMAP4, LDAP, PH
- Distribution lists allow easy management of large mailing databases.
- Support for multiple "identities" - easily selectable groups of preference settings.
- Support for multiple users on the same machine as well as on networks.
- Multiple folder formats and the ability to "mount" other users' mailboxes on your desktop.
- Powerful message editor with full formatting capabilities.
- Full support for the Internet MIME protocol, including digests and alternative message types
- Powerful, multiple address books with aliasing ("nicknames") and full user detail records.
- Automatic listing of local users.
- Complete support for Novell NetWare local area networks, in both NDS and Bindery modes.
- Selective download allows you to preview a POP3 mailbox before downloading it.

- Offline operation allows you to read and compose your mail while you are not connected to the Internet.
- Many ease-of-use features, including easily accessible lists of recently-used addresses, directories and files, and address completion in any address field.
- Message reader supports wrapping options to handle even the most deviant messages.
- Rich plug-in interface allows third-party extensions and mail forms to be developed.
- Template interface allows you to design complex mail forms using a simple text editor.
- Spelling checker, with UK English and US English dictionary, and user dictionary additions.
- Highlight significant messages using your own color schemes.
- Sort your mail by date, size, sender, subject, color or thread, in ascending or descending order.
- View attachments directly from within the program.
- Supports confirmation of reading and confirmation of delivery requests.
- Glossaries allow you to store commonly-used texts and expand them with a single keystroke.
- Automatic replies and automatic forwarding when interfaced with Pegasus' Mercury mail server.

(CONTINUED ON PAGE 16)

- Powerful encryption interface - the program has its own encryptor, and by adding readily available plugins, can support encryptors such as PGP.
- Noticeboards allow controlled posting and reading in public mail areas, much like Internet news.
- Optional copies to self ("sent mail" in other programs), with the ability to prompt for a folder where the copy should be placed, and full mail filtering support to file your copies.
- Selectable and user-adjustable toolbars .
- Incredibly rich preferences set allows you to control practically every aspect of the program.
- Rich options for reporting new mail while the program is minimized on your desktop.
- Automatic hyperlinking of URLs and e-mail addresses, even in non-HTML messages.
- Over 300KB of well-indexed, logically-arranged online help.
- Drag and drop attachments from the desktop to Pegasus Mail.
- Notepads give you an easily-accessible workspace for storing notes and work in progress.
- Circulation messages allow you to send a message or document to successive people in order for comment and amendment.

- Full DDE interface.
- Telephone message form for the office.
- Support for multiple simultaneously accessible Powerful Select feature allows you to select messages based on arbitrarily complex conditions. ... and much more.

#### **MORE**

The program is free - download it and see if it has the features you want. The setup is straightforward, and leaves you with a screen similar to Outlook Express for your mailbox. There is a toggling option by which you can change this to a single pane if you prefer. You do need to have available your POP3 server information to enable the program to access your mail.

One useful feature if you have more than one POP3 address as I have, is called MultiPop. This can be set up to pick up your mail from any number of such sources, as long as they are POP3. Services such as Yahoo Mail, and Juno, are not POP3 and must be accessed in the normal fashion.

I should point out that you may order a manual for the program from the Website for \$29.95. This option purchases an electronic manual set for Pegasus Mail, with free updates for one year from the purchase date. It does not include formal technical support for the program.

One minor glitch I've encountered has to do with the appearance of messages from

ZDNet or Staples, for example, which incorporate linked graphics in their format. For some reason, all the graphics boxes appear as blank gray or black. If you click on them, the links are there and active, but it's a game of chance as to what you'll see when the new window opens. I have been unable to find any reference to the problem in the Help folders or the FAQ area of their Website. As a free user, I cannot make a direct request for an answer. I've posted a query in the PC911 Forum, but have no reply as yet. I suspect it has to do with ActiveX or some other plug-in. Further browsing on their Website tells me that there are volunteer helpers for people like me at support@pmail.gen.nz There is also a knowledge base available at this URL: <http://kbase.pmail.gen.nz/> . I'll need to follow up on these after I wrap up this Journal and get it in the mail. For an interesting history of the program by its developer, David Harris of New Zealand, check this URL <http://www.pmail.com/history.htm>. ♦

### **Additional Comments on Pegasus Mail**

by **Karl Springer**, LACS

As a long time user of Pegasus Mail (PM), the Editor of User Friendly asked me for some comments to accompany Ron Ingraham's review.

When BBS' were going into decline several years ago, I ventured into email on the Internet. Initially I used a BBS mail program. Since I was

(am?) a DOS die hard, I didn't look at any Window programs. After looking at several mail clients, I settled upon PM primarily because I liked its look and feel, and I could use the text editor of my choice. When I finally migrated to Windows, I embarked on another search and ended up with PM for Windows. One design feature I especially like is that mouse functions have keyboard shortcuts. The latest version of PM has an option to make it look/operate similar to Outlook Express. While I've tried it, I don't care for it. It's a matter of taste. I continue to try other mail clients and PM is still my primary choice.

Since PM is cost and nag free, the author's income comes from the sale of manuals and formal technical support. For most things, the internal help is more than adequate. For help from knowledgeable users and beta testers from around the world there's an active mail list.

#### SOURCE

The URL to sign up and view message archives is <<http://bama.ua.edu/archives/pm-win.html>>. Some users have informative pages on their web sites devoted to PM. <[http://home.kabelfoon.nl/~jaabogae/han/han\\_lkfr.htm](http://home.kabelfoon.nl/~jaabogae/han/han_lkfr.htm)> is especially good.

PM has a UK dictionary; the author lives in New Zealand. The dictionary can be replaced with a US version which I highly recommend. Of course you can add words.

In the review the author commented about appearance of

messages from ZDNet or Staples.

#### SECURITY

Because security is a major design consideration in PM, HTML messages are handled according to the HTML type in which a given message is written:

1. MHTML - this is HTML that has been adapted for use in e-mail. Any graphics required in the message are added to the message as attachments and referenced in a particular way that allows them to be located when the message is read.
2. "Lazy" HTML - this is nothing more than sending a web page. Graphics are linked using their full URLs and have to be downloaded from the web to be viewed. This is the kind of HTML message used by ZDNet and Staples.

MHTML is safe - there are no security issues with it and you don't have to be online to read the message.

Lazy HTML, however, is a minefield because you have to be online to see the graphics. The fact that the graphics are retrieved creates a significant security problem because it allows the person who sent the message to determine that you have read it, when you read it, how often you read it, and whether or not you forwarded it to someone else. Furthermore, by using a 1X1-pixel graphic somewhere in the message, this information can be gleaned completely without your knowledge or awareness. In addition, Lazy HTML messages are often the vehicle of choice for HTML worms and trojans. Opening

such messages in a web browser exposes you to those dangers whereas PM is able to protect you completely from them in its internal viewer.

Besides the various feature options offered within PM, users can customize PM by integrating add-ons, many of which are written by users and are free. One example is a utility to virus check file attachments directly. For those who like tag lines, (signatures) there are a couple of programs to choose from.

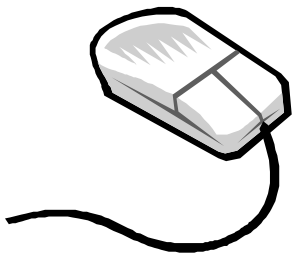
Late last year the author released v4.00, a major program rewrite with additional features and options. As of this writing, v4.01 is the current public release. As expected, it still has some bugs. Version 4.02 with bug fixes and additional features is at Beta 7. If you wish to try PM, I suggest using the last of the former series, v3.12c, before trying the current release since v3.12c is essentially bug free. Generally it has the same overall look and feel of the v4-series. v3.12c is one of the programs on the APCUG CD which LACS sold some time ago. If you don't have one, I believe there are still a few copies left. ♦



**EDITORS NOTE**

In 1980 Apple computer asked a group of people from Stanford's product design program to take a \$400 device and make it mass-producible, reliable and cheap. Their work transformed personal computing and here is the fascinating story of the MOUSE

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**Mighty Mouse**

by **Alex Soojung-Kim Pang**,  
STANFORD Magazine

DEAN HOVEY was hungry. His young industrial design firm, Hovey-Kelley Design, had been working on projects for Apple Computer for a couple of years but wanted to develop entire products, not just casings and keyboards. Hovey had come to pitch Apple co-founder Steven Jobs some ideas. But before he could get started, the legendary high-tech pioneer interrupted him. "Stop, Dean," Hovey recalls Jobs saying. "What you guys need to do, what we need to do together, is build a mouse."

Hovey was dumbfounded. A what?

Jobs told him about an amazing computer, code-named Alto, he had just seen at Xerox's Palo Alto Research Center (PARC). In early 1980, most computers (including Apple's) required users to memorize text commands to perform tasks. The Alto had a graphical user interface—a symbolic world with little pictures of folders, documents and other icons—that users navigated with a handheld input device called a mouse. Jobs explained that Apple was working on two computers, named Lisa and Macintosh, that would bring that technology to market. The mouse would help revolutionize computers, making them more accessible to ordinary people. "When I walked out that door," recalls Hovey, '78, MS '85, "I was ready to change the world."

Just one problem: a commercial mouse based on the Xerox technology cost \$400, malfunctioned regularly and was nearly impossible to clean. That device—a descendant of the original computer mouse invented by Douglas Engelbart at the Stanford Research Institute in the early 1960s—was a masterpiece of high-concept technology, but a hopeless product. Jobs wanted a mouse that could be manufactured for \$10 to \$35, survive everyday use and work on his jeans. "We thought maybe Steve wasn't getting enough meat in his diet," says Jim Sachs, a founding member of Hovey-Kelley, "but for \$25 an hour, we'd design a solar-powered toaster if that's what he wanted." The toaster probably would have

been easier. Jobs wanted Hovey-Kelley to take a piece of technology developed by some of Silicon Valley's greatest minds, dramatically improve its reliability and cut its price by more than 90 percent.

They did. The mouse's evolution "from the laboratory to the living room," as one of its designers puts it, is not well known—even some Apple fanatics aren't familiar with it—but it reveals something of the personalities of its designers, the Stanford program that trained them and even the history of Silicon Valley. Everyone knows that the University has helped shape the region, but the influence is often described as a function of great individuals like Frederick Terman, specific inventions like the klystron or an accident of geography. The story of the mouse demonstrates the impact of a particular academic program—product design—on the Valley.

When Hovey-Kelley was asked to design the Apple mouse, the firm was a two-year-old start-up. Hovey and David Kelley, as well as most of the firm's other early members, had met as graduate students in Stanford's product design program. An interdisciplinary program that combines mechanical engineering, art and, often, math, physics and psychology, it was founded in 1958 by Robert McKim. McKim, '48, was an industrial designer rebelling against the "styling illness" he saw as common in his field. He wanted his students to go deep, to think about aesthet-

ics, technology, users and economics. “Bob McKim was trying to create little Leonardo da Vincis, people who were skilled in many things and diverse enough to create a whole product,” Hovey says.

The post-Sputnik years were a good time to be a rebel with a cause at Stanford; federal research money flowed freely and ambitious administrators like then-provost Terman, ’20, Engr. ’22, and engineering dean Joseph Pettit, Engr. ’40, PhD ’42, could afford to support unusual departments. “There is always room in a university for one maverick program,” McKim says. Its oddball status allowed the program to move into promising new areas quickly. The invention of the microprocessor in 1974 opened up new ways to combine electronics with mechanical design, even novel ways of thinking about the relationship between a product’s form and its function. McKim’s colleague Larry Leifer, ’62, MS ’63, PhD ’69, started a “smart products” course to explore this territory; Kelley, MS ’78, and Sachs, MS ’79, were among its first teaching assistants.

McKim won not only the support of his superiors, but also the affection of his students. “If McKim had been a Nazi artist, I’d be a Nazi artist now,” Kelley says. McKim’s engineering-school colleagues, however, didn’t necessarily share his passion. “My peers thought I was pretty strange,” McKim says. “And the design division was kind of strange, and loved being strange.”

That strangeness led in some

surprising but fruitful directions. In the 1960s, McKim participated in studies of the impact of psychedelics on creativity, co-authored a book called *Altered States of Consciousness* and founded a medical instruments company. This blend of entrepreneurialism and counterculture might have been unusual in academia, but it brought the product design program in sync with the emerging personal computer industry, whose leaders also mixed cultural radicalism with high tech. Both groups shared a faith that scruffy genius could succeed where conventional expertise failed, both preferred late nights in the machine shop or lab to meetings, and both saw themselves as outsiders, whether from the conventional design world or from corporate America.

THAT PREFERENCE for late nights came in handy in the spring of 1980, when Hovey-Kelley’s offices fairly hummed with activity. Hovey, the mouse project’s informal head, says he “hacked together” the first conceptual prototype in a weekend—using the ball from a bottle of Ban Roll-On deodorant and a butter dish purchased at the Palo Alto Walgreens (“the mouse parts store,” he calls it). That wasn’t the only unusual source of components: one morning, his wife discovered that their refrigerator no longer worked because portions of the motor had gone into a mouse prototype. Not to be outdone, Kelley took the stick shift off his BMW when he was experimenting with mouse shapes. “We all did the

same thing,” explains Sachs, who with Rickson Sun focused on the electrical and optical components. “We sacrificed circuitry, we sacrificed anything. The idea of [formally] designing something and having everything fabricated to your specifications was simply too long, slow and expensive.” Better to “take apart something else, or find something similar, and glue it together or cut it in half.”

This approach was a textbook example of “rapid prototyping,” or building something quickly to test one’s ideas, relying more on models and materials than formal specifications. A cornerstone of the product design program, it was a method well suited to imagination-rich but cash-poor freelancers and start-ups. And it encouraged ferocious concentration. Explains Hovey: “When you’re in one of those modes where you’re building something and you need a part, you figure, ‘Either I can stop and wait, or I can go forward and wreck [the refrigerator]. But it’ll be \$20 to fix it—it’s no big deal.’ When you’re in the midst of the passion of designing, you just do it.”

The designers also drew insights from unexpected directions. The company had set up shop in a \$90-a-month office on the second floor of a downtown Palo Alto building (and as Kelley recalls, “we were scared to death, paying \$90 a month”). The aging building’s uneven floors helped Hovey reach the first breakthrough in simplifying the mouse’s design. He was trying to elimi-

(CONTINUED ON PAGE 20)

**(MIGHTY MOUSE)***(CONTINUED FROM PAGE 19)*

nate the precision part that the Xerox PARC mouse used to push the ball onto the table. As Hovey watched balls roll off his gently tilted table, he realized, "That's exactly what I want it to do: I want it to roll without slipping." The ball didn't need to be pushed; it could float. "We'd barely [need to] touch it to get the information about where it was moving," Hovey says.

Sachs, who had taken some electrical engineering classes as an undergraduate, designed an optical encoder system that used rollers, light-emitting diodes and photo-transistors to track the ball's motion; this reduced the number of moving parts in the mouse and lowered the cost. Sun, '78, MS '78, added an idler wheel with a spring-loaded roller to make sure the ball and encoders kept in contact.

By late spring, "we had solved a number of problems," Sachs says. But the designers worried that "we had created something that required such precision it probably couldn't be mass-produced." As students, the group had often been assigned difficult, even dangerous, exercises: build a Rube Goldberg-like device, design a one-wheeled vehicle for a race down Sand Hill Road. The mouse had evolved into a similar bundle of odd challenges. Electronics were normally expensive and high-tolerance, or inexpensive and low-tolerance; the mouse would have to be cheap *and* precise. Even the cord posed problems: electric cords were

normally either flexible or strong, but the mouse cord needed to be both.

The designers needed something that could keep these contradictory demands from breaking the mouse. Jim Yurchenco proposed connecting the electronics and optics to a single plastic platform, which could keep them in correct alignment and protect them from shocks. Yurchenco, MFA '75, had studied sculpture as a graduate student, and his experience with crafting three-dimensional shapes made him the obvious person to design this platform, nicknamed the rib cage. (Most of the mouse parts had in-house nicknames—the exterior cover was the fur, the cord the tail—but rib cage was the only one that stuck.) Yurchenco did most of the work in his head—a tour de force of 3-D visualization abilities, according to others on the project. Not only did the tiny parts have precise specifications, but Yurchenco had to make it possible for assembly-line workers to snap them onto the rib cage. The rib cage pushed the state of the art in tooling and injection molding. "There were a lot of very small features that had to be crammed into a very small space," Yurchenco says, "and building a mold to do that was complex. Nobody had actually done this before." But once the mold was made, the rib cage could be mass-produced, to exacting tolerances, for pennies a unit. Yurchenco also designed a ring on the bottom of the mouse that users could remove to take out the ball and clean the rollers without touching the

electronics.

The group turned its attention to the exterior design in the summer. Kelley and Douglas Dayton made prototype shapes out of wood or plastic, ranging from square mice to wedge-shaped mice to one complete with "two little eyes like a mouse," Kelley remembers. "Apple rejected it completely." After conducting user tests, Dayton, MS '79, and Apple designer Bill Dresselhaus, MS '74, produced the final exterior design. Apple also decided to reduce the number of buttons from three to one after discovering that users had trouble remembering which was which. The mouse was finished in early 1981. Naturally, the designers showed it to Bob McKim, who declared it "an elegant solution, very ingenious." Looking back, he observes that the mouse project was "a stretch" for his former students, "but not too much of one. There is such a thing as the interesting project that's a little bit beyond your capability, but not so much beyond that you fail."

Fail? Hardly. The Apple mouse transformed personal computing. Although the expensive Lisa flopped, the Macintosh, released in 1984, made the graphical user interface the industry standard. Microsoft responded with Windows, and its own mouse—also engineered by Jim Yurchenco. "We made a mouse mass-producible, reliable and inexpensive," says Sachs, "and hundreds of millions of them have been made."

The mouse established Hovey-Kelley's reputation, and its influence continues to

resonate in the successor company, IDEO. “The most sought-after projects in the company are the ones in areas where we don’t have a lot of experience,” says Kelley, who now divides his time between IDEO and Stanford, where he is an associate professor in the product design program. (Sun, Yurchenco and Dayton also are still with IDEO; Hovey and Sachs have since founded other companies.) The mouse, Hovey says, “had the right balance of mechanical design, ergonomic design, software design and electronic design that really mapped well with the generalist, mini-da Vincis that Hovey-Kelley had. Even down to the tactile aspect of the click, it was a perfectly scaled project for a Stanford product designer.”

THE CLICK? What’s so important about that? From a mechanical point of view, the button was simple, but Hovey-Kelley’s attention to it is illuminating. The feel of the mouse shaped the experience of using the Lisa and Macintosh, and the button defined the experience of using the mouse. A rugged detector and encoding system, a rib cage to hold the electronics and mechanical parts together, and a removable cleaning ring were all necessary to make a mouse that would work. Paying attention to the subtle ergonomics and aesthetics of the button was necessary to make a mouse that would be used. Getting the button right—giving it an audible “click” to tell users how far to push, figuring out how far it should depress, making it responsive but not so sensitive that it could be ac-

cidental activated—meant getting the mouse right. It was part of what Sachs calls “the Zen of the product,” the hard-to-describe qualities that shape the experience of using a technology. We normally think of technologies as mere applied science, reducible to drawings and parts lists; but as Sachs explains, every device has a ghost of “intangible intellectual property about how something works that you simply can’t document, or things where language fails us. The Zen of the product is something you can’t write down.”

That might help explain why the story of the Apple mouse isn’t widely known. It would seem to have all the ingredients of a good Silicon Valley story—young protagonists, innovation to burn, a wildly successful product, a Steve Jobs cameo—but product design just isn’t something journalists or historians tend to write about. It’s supposed to be invisible: the work designers do belongs to their clients. It’s the reverse of fashion, in which the designers are household names and the producers are anonymous. Companies may actually forget that they were clients—in fact, the first patent Apple filed on its mouse mistakenly assigned sole credit to an Apple employee. But it’s more than that. Even in histories of Apple, “the mouse gets lost and is just sort of there,” Sachs says. “Those of us involved in the design actually smile at that, because our objective was to make it seamless and invisible,” he says. “The fact that the mouse was unobtrusive and natural is the result of a lot

of work.” Few users ever notice the heft of the cord, or the effect the connector linking the cord to the mouse has on the mouse’s agility, or the silence of the ball as it moves across the desk. But they’re not supposed to. It’s the peculiar fate of good design to erase traces of itself; bad design is far more noticeable (remember the first iMac mouse?). As proud as the designers are of the mouse’s popularity, they’re even prouder of its invisibility.

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## Meeting Reporter Needed

Volunteers are needed to write a brief report each month on the LACS General Meeting. It’s easy—no computer expertise required—and help in formatting and editing will be provided. **Volunteer now** by sending an e-mail to: [editor@lacspsc.org](mailto:editor@lacspsc.org) or call Dick Smith at (323) 294-3441 and leave a message. ♦



## Report of September Meeting of Hardware SIG

by **Jordan Burkart**, LACS

The meeting was intended to check out three printers donated to LACS. Pending arrival of these printers, the group focused its attention on a desktop computer containing an AMD K-6, which would not start. An emergency startup floppy disk was tried, with the result that the machine started in DOS. A check of the directory showed a very large number of .chk files created by Scandisk or Checkdisk, indicating corrupted files. All of the .chk files were deleted, and a normal start from the hard drive was at-

tempted. The machine started into Win 98 safe mode. Then, a normal start from the hard drive was attempted, after putting the Win 98 CD into the CD-ROM drive. Windows 98 was then re-installed from the CD. This was going to be a time-consuming process, and the printers had arrived by then, so attention was shifted to them.

However, one of the printers had no power block and therefore could not be examined. A LaserJet III would do absolutely nothing, not even a self-test.

So it was then decided to return to the AMD machine, which had completed installing Windows 98. A cold boot was attempted, and the machine again started in safe mode but otherwise appeared to be working fine. A possible

solution to the machine's starting only in safe mode was suggested by one of the SIG's members: (1) rename the win.com file to fool Windows into thinking that the machine did not have Win 98 already installed; (2) then do a full, clean install from the Win 98 CD. It was now time for the meeting to adjourn, so CapK was to attempt this procedure later and report back to the SIG.

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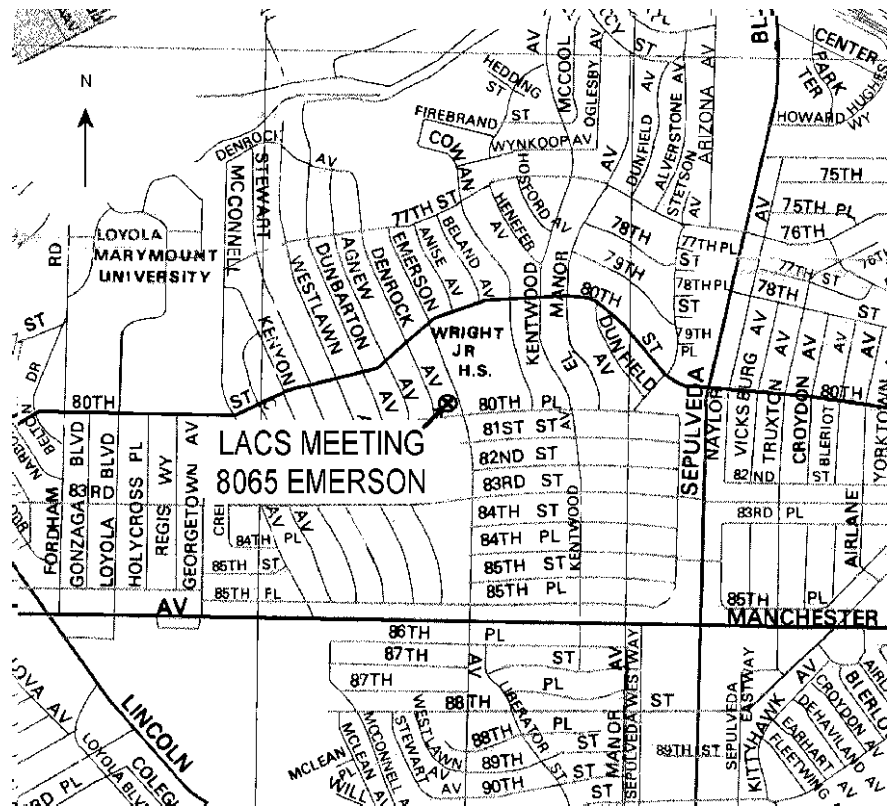
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