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Trolling For Wi-Fi - Where Did All Those Photos Go -
Software Downloads By Keyword - Care and Feeding of CD's
Sony BMG - Shame on You - A USB Primer - Chapter Reports*

Introducing The Samchillian



Wi-Fi

WiMAX



JOURNAL OF THE CHICAGO COMPUTER SOCIETY

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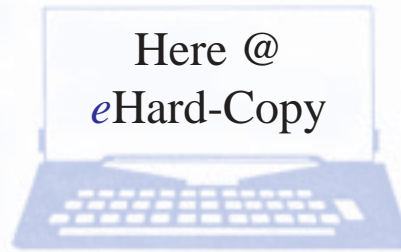
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by Charlie Sickels, Managing Editor
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Commentary and news about some of the articles and also our writers, along with related matters, all intended to make this journal more useful to you.

Greetings to the loyal and diligent CCS members who seek out this form of our monthly journal. We hope you find it worth your time and effort. We hope you will tell us why if you do not. We further hope you will tell us of topics or material you find interesting, do not find here but would like to. If we agree and can do it (for a nickel or a dime) we'll give it a try. Without comment to the contrary or with congratulations, we'll just continue on our mostly merry way.

This issue has a strange-looking keyboard on the cover and again inside. It applies to an exclusive major article which describes the development of that keyboard MIDI and the musical instrument that grew around it, the "Samchillian". As of this writing, Google has more than 28,000 references to that unique term, so it is not so much unknown as I'd believed. The surface of the adapted keyboard has what seemed to me to be a pattern derived from a low-level aerial mapping run but the author says it was just a painting by a friend. As is the case with a bagpipe, this MIDI's rapid and unique musical output is not for everyone, but is worth learning about.

We present another major article, this one from Sandhills Publications, on dancing about within the wireless communications industry. It's a counter example to

the model process by which a cross-company joint committee developed the admirable JPEG graphics standard. That term came from the acronym for the committee's name, Joint Photographic Experts Group. In the wireless case also, a joint committee to develop a common standard was formed; its decision was slow to be accepted and adopted; other elements and factions weighed in and developed their own standards, inviting others to join them, so the standard is not just one standard. Read all about it in the WiMax and Pre-WiMAX article. Maybe this group also should have called themselves "Experts" for self encouragement and to intimidate their competitors.

Here, we do have some other experts with advice and counsel, for example, on the legality of local wireless transmission. We have recommendations for practical procedures to keep your CDs content and faithful. We have an Oklahoma lawyer casting scorn and shame on Sony for their dealing with imagined threats, not that Sony will listen. We have an experienced PhD explaining the virtues and advantages of USB connections, along with a potential slowdown to avoid.

Closer to home, we have two steadfast locals, Allen Kapusta and Henry Werner, recorders of the deeds in meetings of the Downtown Chapter and the Digital Imag-

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ery SIG. For the sharp and diligent reader, we also have a prize CCS member number subtly placed at the conclusion of an article within. (Hint: the location is not at either end.) If the member number is yours, you can purchase \$25-worth of Best Buy goodies without using your own money. Does that seem worth looking for? ■ (TOC)

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Hard-Copy FEATURES

*Be Sure to check out the monthly
calendar for meetings about your
computing needs at
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On the following pages you'll find this month's offerings of articles and reviews by staff writers, guest contributors, CCS meeting reports and special announcements.

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The Samchillian

Tip Tip Tip Cheeepreeeee

by Leon Gruenbaum



DIGITAL MUSIC WITH A PC

By an unexpected series of occurrences, I became aware of an innovative usage invented by a busy New Yorker, younger than most of us at 42 and probably more diligent. He developed a unique device for a unique activity and has been demonstrating it on international tours since then. Informed of the PC connection and its very special usage, I sought it out for our journal. I can offer no explanation for the elaborate name he chose for the process. Maybe it's a generational thing. He describes its development in the article below and tells you how to sample the sound so you can hear it yourself. —CS, Ed.

Over a decade ago I had the idea to create a musical keyboard that was based on intervals, rather than fixed pitches. I successfully created such a keyboard, which I dubbed the Samchillian Tip Tip Tip Cheeepreeeee and since then I have recorded and toured internationally with it. In this article I will explain how I brought this idea to fruition, first as software and later as a hardware device (and most recently—ironically—as software again).

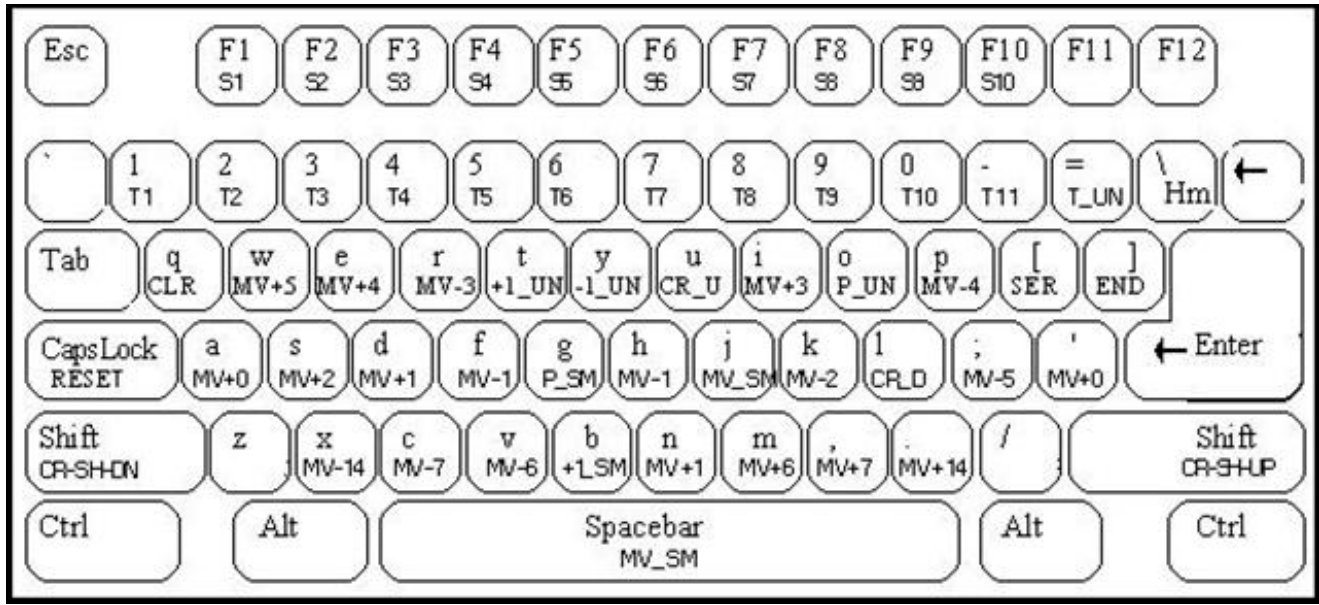
I should first explain that my background is both in mathematics and music - I have a degree in math from Harvard and have played the piano and woodwinds from a young age, starting with classical, and progressing to jazz and other kinds of music.



Not long after moving to New York I found myself thinking about bebop melodies that modern jazz musicians were playing at that time - very fast improvised lines that seemed more concerned with the rhythm and the shape of the lines than the harmony - when it struck me: why not have a keyboard where each key denoted not a *fixed* pitch, as is usual, but rather a *relative* change in pitch. That is, each key would denote whether the next pitch heard would be up or down from the previous note heard and how many steps away, in the current key and scale selected. The player could focus on the rhythm and general shape of what he/she wanted to hear and let the notes take care of themselves, essentially. In addition, many phrases that would otherwise be impossible to play on a conventional keyboard - or at the minimum require weeks or months of practice - could be performed extemporaneously, in any key. And further, I knew that new music technology often yields strange and unusual music, which in and of itself can be of interest to adventurous musicians.

I should also mention at this point that it was important to me to create something “manual”, i.e. with only one note sounding per keypress - to give a human feel to the playing. This would be in contrast to a lot of devices on the market that make it “easy” to play music because one button sets off a lot of “automated” music.

Here's how the idea works: one first decides on a scale and key signature, say G Major. (Using the function keys, one selects the scale and adds flats to the key signature with the number row.) Then each key stands for a change in pitch, relative to the last pitch sounded. So



if the last note heard was the pitch ‘D’, then depressing “plus 1” will result in sounding ‘E’. Depressing “plus 1” again will yield “F#” and so on up the scale. In this way the entire range of a scale can be played with just one key. Similarly, the “minus 1” key moves you stepwise down the scale. Repeating “plus 2” would move you up by 2’s. One more example: starting in F# Pentatonic (which is the same as the black keys on piano) “plus 1” alternating with “minus 2” might yield this sequence: F#, C#, D#, A#, C# etc.

I got to work immediately - a friend had an Amiga(!) computer and I wrote a simple program in BASIC to test out the idea. I used a standard black and white piano-style keyboard as the input device and remapped what the keys did. (E.g., middle C was ‘zero’, C# was ‘plus 1’, B was ‘minus 1’, etc.) I was pleased with my test but very quickly I realized that it wouldn’t look to the audience that I was doing anything new at all, so I decided to use a computer keyboard as input instead, even though this meant losing touch sensitivity and other niceties. However, more keys were easily at finger’s reach and, possibly more importantly, it would stand as proof that the old layout wasn’t necessary. I eventually chose an ergonomic keyboard made by Kinesis, as it was comfortable and also seemed to me a work of art.

By the way, I should explain that what I created is a MIDI (Musical Instrument Digital Interface) controller - this means that the unit really does not make any sound itself; rather, it sends information about which note to play, etc. (MIDI codes) to a synthesizer or sampler which outputs the sound.

Around this time I had acquired a PC, taught myself C and ASSEMBLER, and created a full-fledged version. I also realized I had a huge decision to make: how should I lay out the keys? That is, should the “plus 1” key be assigned to the letter F, etc. It was important to get this right - once I assigned the keys and started learning my layout it would be difficult to change. I recalled that a man named August Dvorak had created an alternate keyboard layout, so I studied his reasoning and applied it to my problem. Obviously there are many solutions to such a problem. But I was satisfied with what I chose since I could execute most of the patterns I wanted. I actually employed a PC artificial intelligence program called *Prolog* to assist in this huge math problem - more detail on this is available at <http://samchillian.com/dvorakprolog.html>.

As soon as the program was working and I was learning to play it, I thought to get a laptop so I could easily

play outside my house. But a colleague said, “No - you don’t need a screen, or a hard drive, etc. You should create an embedded system.”

This well-intentioned advice led me down a long, hellish(!) path. The idea was to strip the PC program of references to DOS and even BIOS, and then burn it into ROM placed on a commercially available circuit board that was essentially a PC itself (albeit at a blazing 10MHz!). This card in turn was connected to a custom I/O card which allowed the software to communicate with the outside world.

I had a lot of help from a very loquacious rep from the PC-on-a-card company but my soldering skills were sub-par and I had many problems in the beginning, including the classic inventor’s loud pop and puff of smoke. Eventually, however, I did create a working, albeit temperamental, unit with which I began performing in clubs and restaurants in New York, as well as on the streets.

Soon thereafter I met Vernon Reid, the guitarist, and began recording and performing with him in New York

and European jazz festivals. I had some hairy moments on stage when the machine just didn’t work, but eventually I attracted some competent help, both for hardware and software, and I now find my unit is the most reliable part of my system.

Also, around this time I applied for and received a patent for this relativistic musical instrument concept (#5565641). I am currently in touch with a number of electronic instrument manufacturers about licensing this idea to them for commercial products. One idea is to produce a simplified version as a toy.

In recent years I have also decided to release “at home” software versions of Samchillian and there are now software versions for the PC and Mac (OS9) available for free on my website. (A commercial OSX version is on the way). I was unsure if it was in my best interests simply to “give it away for free” but it is good, self-generating publicity for the Samchillian concept.

There are some features in my hardware version that might be of interest to the reader. The first are the indi-

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cator lights. With each keypress, some combination of 3 LEDs will light up. These represent the last 3 digits in binary of the MIDI note number. I added lights because without them often the audience didn't even know I was playing, so small are my finger and hand movements. I also have a knob (an "optical encoder") that serves as a pitch wheel, and the ability to plug in a foot pedal for "continuous control" (which can control vibrato, wah, etc.). Finally, I did program in a simple tone - an 8-bit 11KHz sine wave -so that one could have some sound without the need for additional equipment.

On the software side, one interesting feature is a serial mode (as is used in 12-tone music), in which notes are manually "recorded" and not allowed to repeat, and then can be played back backwards, forwards, by 2's or 3's etc.

Technically, the unit is not monophonic (i.e., playing only one note at a time), but I tend to use it that way since I don't see any particular benefit to playing chords on Samchillian. Even as a mono instrument it turns out to be quite versatile—in addition to playing extremely fast, unusual solo lines, I also play interesting repeating percussive patterns, and I have even toured playing the role

of the bass player in a group (with synthesizer sounds of course).

I have often questioned the route I took; most of the problems I had were due to my inexperience w/electronics, and theoretically I might have ignored the original advice and used a laptop. In fact, I am currently investigating using an OSX laptop in performance from now on. Laptops are plentiful and don't require users to lay out any additional money. Also now there are programs that make programming for MIDI much easier, such as Max/MSP. In fact, when I demonstrated for a Harvard class, a student had worked out a basic version of the Samchillian concept in "about 1/2 hour".

However, there are some advantages to having a hardware unit. Since this is the only program that runs on the system, there are no conflicts with other programs. Furthermore, upgrading or adding another program is impossible. And as you know, making any changes at all to a system can theoretically interfere with proper functioning. In addition, laptops on stage run the risk of falling and/or getting broken or stolen. Plus a final advantage to having created a hardware version is that in its current form, the unit would be quite cheap to mass reproduce.

I invite readers to read more about Samchillian and hear sound clips and watch the demo video here:

<http://samchillian.com/aboutsam.html>

download the PC version here:

<http://samchillian.com/standalonepc.html>

and explore my website generally at:

<http://samchillian.com>.

Leon Gruenbaum has been a vital force in the New York music scene for the last 17 years. He studied music at the New England Conservatory preparatory school and received a B.A. in mathematics from Harvard. He has recorded and performed internationally with this patented MIDI Controller, the Samchillian Tip Tip Tip Cheeepreeeee. You can learn more about the Samchillian, and contact Leon at

<http://samchillian.com/aboutsam.html> ■ (TOC)

A WEBSITE TO NOTE

Software Downloads by Keyword

from Silvio Schiazza

This is a big collection of sites to get downloadable software at low or no cost, organized by a keyword system. It is not big name apps but far more than you might expect. CCS member Schiazza found it in *Smart Computing* magazine. Visitors to this site are welcomed by a simple screen of letters with instructions simply to “Click for keywords beginning with a letter.” Doing so will take you to a list of Keywords beginning with your chosen letter, with the number of downloads available noted to the right. Clicking on the word you choose then takes you to a list of available downloads, complete with description.

The site is no frills with downloads divided into three simple categories:

- 1) Recommended Software,**
- 2) Entire Software Directory: Shareware + Freeware, and**
- 3) Freeware Only.**

<http://www.bykeyword.com> ■ (TOC)

Tech News

Microsoft Previews IE7

Internet Explorer's program manager, Eric Lawrence, recently posted a blog that said IT7 (an advanced motherboard) plans to support the Transport Layer Security protocol by default. He also explained how IE7 (Internet Explorer 7) will behave differently from earlier versions when it encounters potential security problems. From an HTTPS page, users will be forced to access insecure content via the information bar, since only the secure content will be rendered by default. IE7 is also rumored to have tabbed browsing similar to competitor Firefox.

A Computer for Every Kid

A \$100 laptop? A global effort is underway to make it happen by next year. It was a pipe dream only a few months ago but soon will be reality. An ambitious effort from MIT Media Labs to put a \$100 portable in the hands of every child in the world is picking up big corporate partners, top engineering talent, and interest from several countries. One Laptop Per Child (OLPC), a non-profit venture, is expected to start distributing machines late next year and to produce 100 to 200 million in 2007.

AMD plans 4-core Opterons by 2007

Advanced Micro Devices put a quad-core server processor on its road map and promised to upgrade its software investments, as it outlined its general technology direction for the next couple of years. The new processor will incorporate four cores connected together by a new version of the Hypertransport Interconnect technology, and will support DDR3 (double data rate 3) memory. The 2006 dual-core chips will also introduce AMD's Pacifica virtualization technology and its Presidio security technology into AMD-based systems. AMD's goal for 2006 is to improve its standing within the busi-

ness PC market, both in desktops and notebooks.

Phishers use Phony IRS Tax Refund to Scam Consumers

A spam e-mail message has been sent around the world telling people they are eligible for a \$571.94 tax refund from the IRS. The e-mail offers a link to a fraudulent IRS Web site, but the link actually goes through a legitimate Government Web site. The link in the phishing e-mail goes to a forged IRS Web site that asks for a Social Security number, tax returning filing code and credit card details including security codes and PIN. The government is aware of the issue and is working to fix it.

New TIVO Product Promotes Targeted Ads

After introducing a generation of television viewers to the joys of skipping over ads, TIVO plans to launch a new service to let its subscribers seek out the advertisements they've cut loose from their TV viewing. Digital video recorder (DVR) maker TiVo is positioning the new service, scheduled for a mid-2006 launch, as a way for subscribers to find targeted ads in categories that interest them. The opt-in technology will let TiVo subscribers use keyword searches to look for information on specific products or services. The ad service will be free for subscribers; pricing for advertisers is still being determined.

Microsoft Considers Making Desktop Apps Free – With Advertising

Although no specific plans have been made, executives within Microsoft are examining whether it makes sense to release ad-supported versions of products such

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as Works, Money, or even the Windows operating system itself. Microsoft officials confirmed the authenticity of the paper, dated winter 2005, but declined to comment on its contents. But Chief Technology Officer Ray Ozzie and Chairman Bill Gates outlined some of the opportunities and the challenges Microsoft faces in a series of October memos. In the blunter of the two memos, Ozzie said Microsoft had an obligation to act on the shift to ad-supported software. .."It's clear that if we fail to do so, our business as we know it is at risk," Ozzie wrote. "We must respond quickly and decisively." The company's exploration of ad-supported software extends even to Windows, it's most important product. An ad-supported version of the operating system could make some sense, Microsoft researchers argue, noting that the product reportedly earns \$9 per year per user.

A New Kind of Music Label

40 years ago Jac Holzman changed music distribution with the release of The Doors' album on his independent Elektra music label. He's introducing a similar change with Cordless Recordings – the first all-digital

music label operated by a major record company, the Warner Music Group, which is launching on the Web and on digital music services such as iTunes and RealNetworks' Rhapsody. Music from the label's first six bands is being sold only online in 3-song "clusters" instead of albums. The bands will be promoted on blogs and sites like MySpace. Artists get to keep ownership of the master recordings they release under Cordless. If they want to release their music elsewhere after a short contract is up, they are free to do so. The Cordless Recordings labels is an experiment for Warner Music, which has increased its focus on digital distribution, and a bet that inexpensive Internet distribution and marketing may give labels a cost-effective way to nurture new bands. On the label side, it's an attempt to reach out to a music-consuming world that is deserting radio and record stores for iTunes and MySpace.

The Editorial Committee of the Association of Personal Computer User Groups (APCUG), an international organization of which this group is a member, brings this article to you. ■ (TOC)

Share a photo here

Now that digital photography is so popular, we thought that readers might be interested in sending us a copy of a charming photo to share with other readers. Since space and time are limited, we have a few rules.

- Image should be digitally rendered, involving PC usage, of any appropriate subject.
- Format should be in JPEG or GIF preferably.
- Transmission should be as an e-mail attachment.
- As Subject of the e-mail message, use "Photo for *H-C*".

Please include data, if possible, stating: place, approximate date, camera, conditions (if noteworthy), and photographer.

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WiMax & Pre-WiMAX

The Long Road To The “Next Big Thing”

In 2001 a group of companies formed the nonprofit trade organization known as the WiMAX Forum. Since that time, those companies have been touting WiMAX (Worldwide Interoperability for Microwave Access) as the latest and greatest wireless broadband standard. Unfortunately, formal testing and certification was delayed several times, beginning in earnest in mid-2005. In the interim some vendors got tired of the wait and looked elsewhere for a wireless standard, while others developed early, noncertified technologies called pre-WiMAX solutions

Now that testing and certification is proceeding, companies that adopted pre-WiMAX systems are wondering how these products will perform in the certified market. At the same time, supporters of a different wireless technology, Wi-Fi (wireless fidelity), are jumping on the precertification bandwagon, announcing products they assert will be compatible with the upcoming Wi-Fi standard, 802.11n. To help you understand what these precertifications mean and what their effects on you or your company might be, we'll compare the two standards and discuss the reliability of precertified solutions.

Common Denominators

Other than being wireless technologies, WiMAX and Wi-Fi share a few common bonds. Both operate under a system of standards approved and documented by the IEEE (Institute of Electrical and Electronics Engineers).

The WiMAX standards group is collectively called 802.16. The standard for fixed WiMAX (wireless broadband to stationary devices such as home or office PCs)

is 802.16-2004. Ratified by the IEEE in July 2004, 802.16-2004 offers data transfer rates of up to 75Mbps (megabits per second; just over 9MBps [megabytes per second]) over distances of up to 30 miles (4 to 6 miles is typical). A second standard, 802.16e, establishes specifications for mobile WiMAX (such as for laptops or cell phones). Approved by the IEEE in December 2005, it offers similar speeds over slightly shorter distances (typically 1 to 3 miles).

Wi-Fi, on the other hand, adheres to the 802.11 standard, which provides close-range, wireless broad-band access in fixed and mobile environments. This standard went through several waves of development before arriving at the current leader, 802.11g, which supports speeds of as much as 54Mbps over distances of up to 300 feet.

In 2003 the IEEE responded to growing demand for increased wireless performance by authorizing the creation of the IEEE 802.11 Task Group N (802.11TGn). IEEE charged the group with developing modifications to the 802.11 specification to support a minimum speed of 100Mbps. Developers assert the final specification may support transfer speeds exceeding 200Mbps over longer distances than 802.11 currently supports. IEEE also called for 802.11n to be backward-compatible with earlier standards: 802.11a, 802.11b, and 802.11g. (Currently, the three are not interoperable, although some devices support more than one protocol.)

Certification Solutions

It might seem that after a specification is approved, as is the case with WiMAX, vendors should be able to

by Jennifer Farwell
*[Reprinted from PC Today,
 March '06, with permission]*

develop products and run with them. However, companies must undergo a strict approval process before they can mark their products certified.

Certification ensures that a product meets a set of criteria (that it conforms to one or more profiles) and that it will be interoperable with equipment of at least three other devices from that profile. Certification enables companies at every level, from broadband providers to end users, to create their own best package solution without regard to vendor.

The IEEE engages independent, unbiased firms to conduct certification testing and sets up certification labs at locations around the world. It also conducts “plugfests,” where companies come together and conduct tests of their equipment with devices from other companies to see if they are interoperable.

Restart A Stalled Train

In the case of WiMAX, IEEE has had a difficult time preparing for the certification process. When initial Wi-Fi certification began many years ago, there was only one profile. (The IEEE has expanded the number of profiles since then.) WiMAX, on the other hand, is a much more complex animal.

WiMAX can operate on a number of spectrums, and its various specifications support four targets: fixed, nomadic, portable, and mobile. The result is an array of profiles, many (if not most) of which are not interoperable with each other. A product may be certified in a single profile, or its developer can attempt certification in more than one profile if appropriate.

Additionally, because WiMAX is based on an open (nonproprietary) standard, IEEE had to create a set of benchmarks, find a company that could measure them, and then validate the testing process and equipment before certification could begin. These problems resulted

in numerous delays and postponements.

To reduce complexity and speed up the initial certification process, IEEE finally divided certification into five waves. Certification for the first wave began in July 2005 at Cetecom Spain in Malaga. Certification testing for the second and third waves should be completed sometime this year. The five waves of certification are as follows.

- Wave 1: Products are certified at the most basic level, enabling an air link without demonstrating the ability to deliver voice and data services over that link.

- Wave 2: Products are certified on QoS (Quality of Service; the ability of a product to provide reliable service and appropriately prioritize network flow), security, and advanced radio features for outdoor CPEs (consumer premise equipment) such as transmitters and receivers

- Wave 3: Products become certified for indoor CPEs, such as modems and PC Cards, for fixed and nomadic networks

- Wave 4: Products will be partially certified for mobile WiMAX (802.16e)

- Wave 5: Products can be certified for full mobility

All Aboard

Although vendors were initially eager for WiMAX certification, and Wall Street was (and still is) anxious for certified products to be available, the long delay may have encouraged more companies to release pre-WiMAX products. By the time IEEE held the first plugfest last November at the Global WiMAX Summit in Beijing, China, companies and municipalities had deployed more than 150 pilot and commercial WiMAX networks, ac-

ording to Ron Resnick, president of the WiMAX Forum.

The networks, either built or in process, range from the highly targeted, such as BellSouth's commercial wireless Internet network (built primarily to serve University of Georgia students in the city of Athens, Ga.), to the widespread, including a wireless broadband network that covers 8,000 square miles of southeastern Alberta and serves rural consumers and the Alberta government. An array of companies and customers, from film festivals to the Brighton Express commuter train, are using WiMAX as a wireless broadband solution.

Another factor that likely encouraged vendors to release pre-WiMAX solutions was the continuity of the standard. From the release of the final specification until its ratification in 2004, the IEEE made only minor tweaks. Such consistency gave vendors a high level of confidence that there would be few, if any, subsequent changes, and such proved to be the case.

The delays also encouraged some vendors to begin their own interoperability trials. In March 2005 WiMAX developers Alvarion, Airspan Networks, and Redline Communications announced the start of private interoperability testing between Alvarion's BreezeMAX platform, Airspan's AS.MAX product line, and Redline's AN-100U line of pre-WiMax base stations.

Since that time Alvarion announced it would skip the first wave of certification altogether; it's not the only company to do so. "It's a crawl, walk, run process," said Carlton O'Neal, vice president of marketing at Alvarion, in an interview with UK-based IT site Techworld.com. "If someone is walking already, then they don't need to do a test to show they can crawl." (Alvarion has committed to become certified during the second wave.)

Alvarion is a small but dominant player in the WiMAX market, and as such probably has the credibility to skip a

wave. Other companies are skipping phase one because they cannot afford to go through every phase of testing. Nevertheless, the WiMAX train is gathering speed. "Analysts believe that once equipment is certified, service providers would begin to roll out nationwide WiMAX service in the licensed bands, particularly in Asia and Europe," says Suzanne Yingling, principal of business consulting firm WiMAXetc. Yingling predicts that even some of the major Wi-Fi rollouts this year will convert to WiMAX eventually.



In mid-2004 PCTEL launched a line of midpriced, commercial-grade WiMAX (802.16-2004) antennas.

So what does this mean for companies that adopted pre-WiMAX solutions? That depends on what sort of promises a company received from its vendor, says Atlanta-based IT consultant Brad Pervis. "Many pre-WiMAX vendors guaranteed a pain- and cost-free conversion or upgrade to certified WiMAX if necessary," he notes. "Companies who exercised caution during development should not experience any problems becoming certified." However, he warns that certification does not mean all WiMAX products will be interoperable with all others. In particular, fixed and mobile WiMAX products may not interoperate.

Wi-Fi Worries

An even less-certain future awaits the companies that opt for a Wi-Fi 802.11n precertification solution. Since the IEEE called for a specification in 2003, major players have been unable to agree on a standard, and many have formed independent development consortiums. At one point the IEEE 802.11n task group was sorting through 61 proposals. The stakes for a protocol useful for everything from streaming video to wireless switches are high, and large technology firms want to put their stamp on the specification.

Generally, the proposals fall into one of two categories, conforming either to the suggestions of the WWiSE (World Wide Spectrum Efficiency) group (Airgo, Broadcom, Motorola, Texas Instruments, and others) or the TGN Sync group (Atheros Communications, Intel, Philips, Sony, and others). WWiSE advocates use of a 20MHz bandwidth spectrum incorporating MIMO (multiple input/multiple output) technology to increase bandwidth, while the TGN Sync group asserts that a 40MHz, double-wide channel would be more effective. If the IEEE standards process breaks down, the result could be competing, incompatible standards down the road. (Remember the VHS/Betamax debacle?)

Proponents of MIMO, which sends data out over multiple antennas and then recombines it at the receiving end, assert its superiority. It effectively increases transmission speeds without a resulting increase in spectrum usage. However, its critics say the technology is more expensive to implement than the 40MHz bandwidth, single-antenna system and has greater power requirements.

In late 2005 Intel helped engineer a solution that marries aspects of the two proposals and employs both 20MHz and 40MHz spectrums. Many industry experts predict that Intel's vision will guide the final 802.11n specification, which representatives of the Wi-Fi Alliance say they expect in November 2006. (They also expect certification to begin at that time.)

In the meantime, Airgo and Atheros Communications are producing precertification 802.11n chips for use in routers and other networking equipment. Technology mavens caution consumers against adopting technologies based on emerging standards. According to the 802.11 Q&A on the Wi-Fi Alliance site, "There is a range of potential interoperability issues with products built based on an early draft of the IEEE 802.11n standard. Products produced by different vendors may not work together." If consumers choose to purchase precertification 802.11n products, they should at least ensure they are compatible with current technologies such as 802.11b and 802.11g. (The Wi-Fi Alliance is a global trade organization that, among other things, oversees Wi-Fi certification.)

In a nutshell, precertification equipment, such as the WiMAX solutions produced over the last two years, is generally a fairly safe bet. However, consumers should approach preratification equipment, such as that currently in development for 802.11n, with caution.

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Chicago Computer Society Purpose

The Society is an education and information service organization dedicated to expanding knowledge, understanding, and the use of microcomputers by individuals and professionals.

The purposes of the Society are to operate exclusively for charitable, scientific or educational purposes, in the course of which operation and in furtherance thereof:

TO PROVIDE its membership with timely, accurate, and practical solutions to microcomputer productivity problems.

TO ATTRACT and help educate new microcomputer users, and to retain and learn from experienced, knowledgeable users.

TO SATISFY the information needs of its membership.

TO BE a recognizable force in the industry so that Society opinions may positively influence future microcomputer products.

LEGAL BYTES

Trolling for Wi-Fi — Is It Legal?



Local area networking has experienced a profound change in recent years. Wired networks are still the norm but wireless networking is popular at homes and businesses. There are several issues worthy of exploration regarding this topic and this column will explore these issues in some detail in this and future columns. One issue is the legality of accessing an “open” wireless network and the other issue is the necessity to protect a wireless network.

Wikipedia states, “wardriving involves the use of an automobile and a Wi-Fi-equipped computer, such as a laptop or a PDA, to detect Wi-Fi wireless networks... It is similar to using a scanner for radio [frequencies]... Many wardrivers use GPS devices to measure the location of the network, find and log it on a website. For better range, antennas are built or bought, and vary from omnidirectional to highly directional. Software for wardriving is freely available on the Internet, notably, NetStumbler for Windows, KisMac for Macintosh, and Kismet for Linux.” Regarding the origin of the term, Wikipedia adds, “Wardriving was named after wardialing (popularized in the Matthew Broderick movie *WarGames*) because it also involves searching for computer systems.”

Wardrivers make identification and access of wireless networks a sport, but is the sport legal? Is there a clear-cut answer or does it depend on the facts?

A recent Florida case provides some guidance. A Florida man, sitting in his SUV and using a laptop, was accessing wireless networks in a residential neighborhood. The St. Petersburg Times reported the matter and made the observation that “a drive through downtown St. Petersburg shows how porous networks can be. In less than five minutes, a *Times* reporter with a

laptop found 14 wireless access points, six of which were wide open. I’ll guarantee there are tons of people out there who have their wireless network being exploited but have no idea. And as we see more people utilizing wireless, we’ll see more people being victimized.” The Florida man was indicted and convicted.

Wireless fidelity, or *Wi-Fi*, has enjoyed prolific growth since catching on in 2000. More than 10-million U.S. homes are equipped with routers that transmit high-speed Internet to computers using radio signals. The signals can extend 200 feet or more, giving a person the ability to use the Web in the back yard of his Crescent Heights home, but also reaching the house next door, or the street.”

The expansion of Wi-Fi hot spots is part of this phenomenon. With a wireless-capable laptop, it is possible to access the Internet at places called “hot spots,” and they are everywhere. Some charge for access but many provide free access. There is an inherent risk in this technology. The router that provides the wireless access point has an identifiable internet protocol (IP) address. Anyone accessing the Internet through that router will appear to be authorized to use that IP address. Someone with a nefarious intent can create a possible legal nightmare for the person responsible for that IP address. The ability to look through the IP address and identify the computer behind the DHCP server is more difficult.

A recent case in Michigan involved the unauthorized access of an unsecured Wi-Fi network at a Lowe’s home improvement store to steal credit card numbers. A 20-year-old, and a friend, stumbled across the network while cruising around in a car in search of wireless Internet connections—wardriving. He was convicted.

by John Brewer
eMonitor, October ‘05
 Computer Club of Oklahoma City

An emerging threat is the “evil twin” attack. A person with the proper equipment sets up a local hot spot and overpowers the Wi-Fi network. Any computer user who accesses the bogus Wi-Fi network is then set at risk by the evil twin. The *Wall Street Journal* has reported an evil twin setup at a technology conference in London. Hackers set up evil twins that infected other computers with viruses and gathered information on the users.

It is apparent that security is an important issue in a wireless network. The original standard was called WEP (wired equivalent privacy). WEP is a form of encryption, but the level of encryption is relatively weak. An improved form of encryption for wireless networks uses AES (advanced encryption standard). AES is strong encryption.

There are ethical issues in accessing a wireless network unless one has specific authority. Is it similar to a form of electronic trespass? Does it constitute a form of theft from the internet service provider? One can easily argue both sides of these questions.

The next column will investigate the legal issues of these questions in more depth. In the interim, owners of wireless networks should consider the security of their networks. Improvements can be made to the wireless network fairly easily. A company by the name of Force Field Wireless has some excellent suggestions regarding wireless security. See www.forcefieldwireless.com. Some of the tips are:

Enable WEP. Make sure you use the largest WEP key size that the equipment supports.

Change the SSID (Service Set Identifier) to something non-descriptive. Do not give a name, address, or any other useful information to potential hackers. Do not use the default SSID.

Change the default password(s) on the access point. The default passwords of most network equipment are well known and could allow an intruder to gain access to the access point.

Disable Broadcast SSID. If the access point supports “closed system” or allows one to “disable broadcast SSID,” use this feature. This will make the network essentially invisible to almost all scanning methods.

Update the firmware and drivers on access points and wireless cards. It is always wise to use the latest firmware and drivers on access points and wireless cards. Manufacturers commonly fix known issues, security holes, and enable new features with these updates.

Enable MAC-based filtering. This feature limits access to unique wireless cards.

Turn off access points when not in use.

Try to position access points in the center of the house or building. This will minimize the signal leak outside of its intended range.

Prudent use of security features in a wireless network can prevent misfortune.

John Brewer practices law in Oklahoma City, is a member of the Governor’s and Legislative Task Force for E-Commerce, and enjoys issues relating to eBusiness and cyberspace. Comments and questions are welcome and can be emailed to johnb@jnbrewer.com.

The Editorial Committee of the Association of Personal Computer User Groups (APCUG), an international organization of which this group is a member, brings this article to you. ■ (TOC)

The Winning Membership Number for February is 10154. Call Beata Kernan at 708-588-0385 to claim this month’s prize.

Where did all those photos go?

File Management



Do you find that when photos get transferred from your camera to the computer, you feel you have lost control? For now, let's see if we can't gain back just a little of that control.

When photos transfer from your camera to your computer, it's really important for you to know exactly where they go and where they get "filed". There is nothing more frustrating than having your photos or other images or documents, or letters or scans get filed in your computer, and then you can't find them later.

FILE MANAGEMENT

This brings us to the subject of this article, "File Management". Let's begin with the thought that your computer is nothing more than a big filing cabinet. Now it's up to you to decide where and how to organize your "files" on your computer, just as it is with the file cabinet in your office.

DISK DRIVES

Before we get to actually managing your files, a brief review of how your computer stores data. Computers store data on "drives", some drives are inside the computer and some may be outside or external to the computer. You probably already know that the "C" drive stores everything inside the computer. It is the heart and soul of your computer, and when you have a disk crash, it's usually your "C" drive that goes, and you are out of business. Other drives may include an "A" drive for use of a floppy disk, and a "D" drive designated as CD-ROM drive which is for your CD's. Other external drives, also get assigned letter designations, and could

include removable or external drives such as zip drives, or memory cards, or docking stations, or cameras, etc. If you left click on the "My Computer" icon on your desktop, you can see these disk drives. You can also view what's on each drive by using your left mouse button to double-click on the A, C, or D icon.

by **Jack Wilfore**
Hilton Head Island Computer Club
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There is one very important icon I want to point, when you are looking at "Windows". The top bar (usually blue) across the top of a



window is the Title Bar, the next bar down on the above window is a Menu Bar, and the third bar down is the Task Bar. On this screen shot, I want to point out one very important icon, the UP ONE LEVEL icon within the red circle, which usually looks like a folder with an up arrow. Get familiar with and use this icon to move around within your "drives", or file cabinet.



Try it! If you left mouse click that UP ONE LEVEL icon, the next window you see is the Desktop. Within the Desktop window, you can see the “My Documents” folder, which is the cornerstone of the file management structure.

FILES, FOLDERS AND THE FILE CABINET

I like to think of drives as file cabinets. They store electronic items such as documents, photos, images, spreadsheets, programs etc. Drives may have individual files (usually not a very good idea), and folders which usually contain a collection of files on a particular topic or a particular use.

Recall that the “C” drive stores everything. Now as these files come in, we just can’t let them go anywhere, this is where we can actually put them into an appropriate folder of our choice. And this is how you will get your file cabinet organized.

Let’s review two key items:

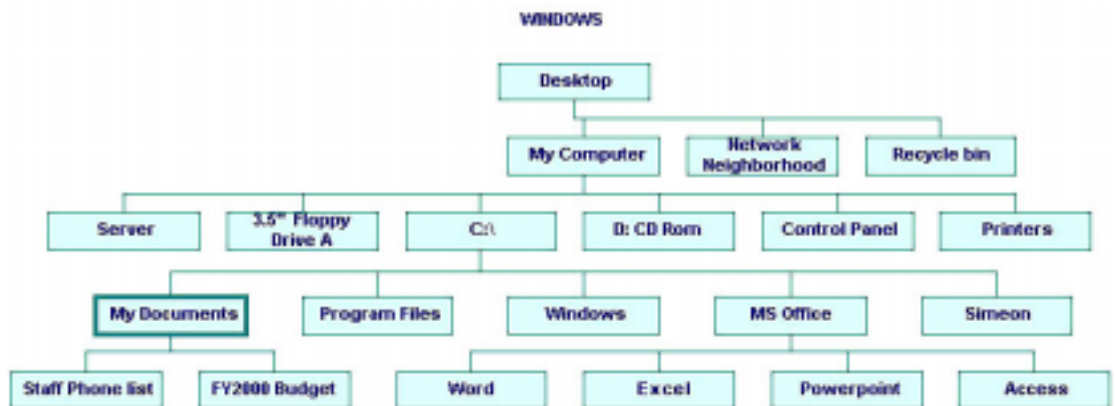
Folders provide that organizational structure to a disk drive, just as they do in a file cabinet. First, you will put labeled folders into your cabinet/drive. Each folder will have a name. When you view the contents of a disk drive, folders are normally listed in alphabetical order. New folders can be created by right clicking on your desktop, and selecting New > Folder. The new folder appears on your desktop with the blue title where you can now type the name you have selected for that folder. These folders can now be dragged and dropped, wherever you want them.

Files can and usually are put inside folders. This is where you will put your documents, your photos etc. In order to be able to find your documents later within an overstuffed folder, you give each document a unique

name. On a PC, it is wise to use the following naming conventions for both folders and files: A file name is made up of two parts: (1) the name of the document and (2) the file extension which is usually assigned by the computer. If you don’t see the file extensions in Windows XP, go to Desktop>Tools>Folder Options>View Tab and then unclick “Hide extensions for known file types.” You may name a file anything you wish (with some punctuation limitations), but it is preferable to name a file something you are likely to remember later. File names should be no longer than 8 characters whenever possible. Although Windows (and Mac) allow longer file names, you may get in problems while transferring files to other computers if you use longer file names. Also, use only letters and numbers in your file names. Special characters like “-”, “/”, “&”, or blank spaces must be avoided in the file name. The second part of a file name is the extension. In the file text.doc, the word text is the file name and the .doc is the extension, identifying this as a Word document. A period always separates the two. The extension identifies what kind of a document you have. Some examples of file extensions are:

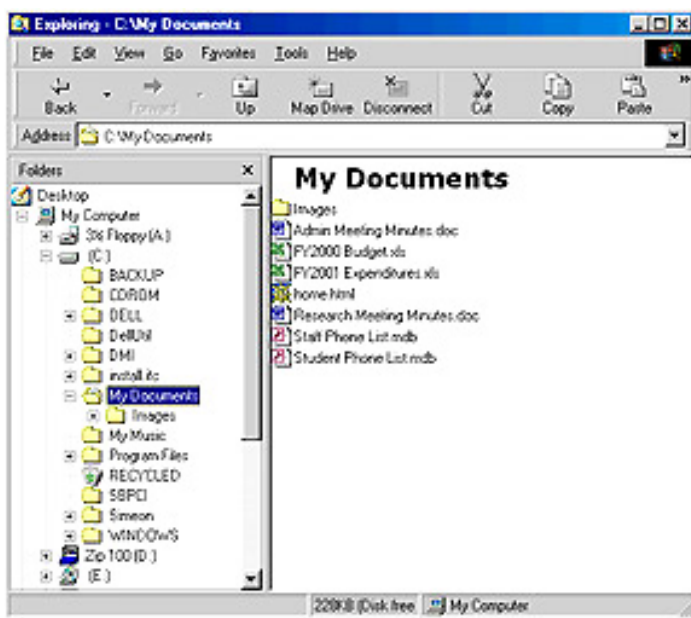
- .txt : plain text
- .doc : Microsoft Word Document
- .htm or .html : Web document
- .gif , .jpg , .bmp , tif , : images
- .ppt : PowerPoint Presentation

THE STRUCTURE



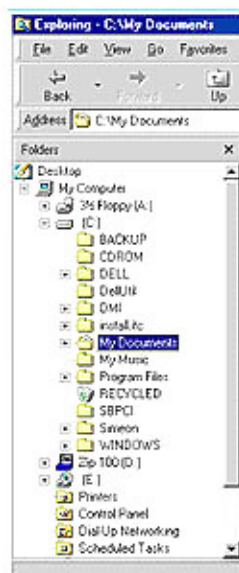
The File Management structure has a tree type organization or is “hierarchical”. And, you have the ability to set up that structure just as you would with the file cabinet in your office.

(Start > Programs > Accessories > Windows Explorer) is one way of looking at the internal file structure of your computer. The following screen capture shows many parent folders, also known as directories, with sub-directories (or sub-folders) and then files expanding beneath them.



In this example, clicking the plus sign beside My Documents expands the files and additional sub-directories inside, or beneath My Documents.

Clicking the minus sign collapses the sub-directories and files. To clarify how this new knowledge can help, when photos are transferred to your computer, whatever the transfer method might be, somewhere you will be asked to decide “where do you want these photos to go?” Some-



times the program will want to put your photos in either 1) a folder it creates, sometimes named with today’s date or 2) into a folder which already exists perhaps as part of your camera software. If this is your preference, make note of both the folder name and its location or path. Sometimes the program will ask you ... and then you can browse and select the destination folder of your choice. In my case, I created a special folder called “from camera” and located that folder in My Pictures, which is in My Documents, which is on my Desktop. Every time I do a photo transfer, I make sure the pictures are going to the “from camera” folder. I can decide later which photos to keep and where I want to store the “keepers”. Either way, you should now be able to sketch out on a piece of paper, ahead of time, exactly where your photos are going, which was the objective of this article.

If you have any questions, comments, suggestions, please feel free to send Jack an email at jjwilfore@hargray.com

More information on the subject of “File Management” is readily available on the Internet, especially from academic sources. Some of the material for this article has been extracted and credit is due these four excellent references:

Furman University’s File Management or Where Did It Go?

<http://facweb.furman.edu/~pecoy/mfl195/tutorial/>

Duke University’s Window’s Explorer: Managing Your Files

<http://www.duke.edu/~dhewitt/tutorials/explorer/explor.html>

University of Virginia File Management

<http://www.itc.virginia.edu/desktop/docs/fms/pc/structure.html#hierarchy>

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Care and Feeding of CDs



I read an interesting article in the September 2005 issue of *Popular Photography* written by David D. Busch titled, “The Truth About Disc Rot.” It paralleled some other magazine and news articles I have read on the same subject. The following is what we should know and understand about CD (and DVD) discs as storage devices. For the purposes of this article, CDs and DVDs are considered the same as far as backup media is concerned. The only difference is that DVDs can hold more data.

We save things that are important to us. Those of us who take digital photos know that simply storing them on the hard drive of our computer is not a wise or safe thing to do as the disc may crash and we will lose everything. Thus, we copy the photos to a CD or DVD disc so that they will be always available for a long period of twenty or more years. However, will they really be there when we look for them?

The media of choice for backup and storage purposes less than ten years ago was tape backup. Some commercial enterprises continue to use digital tape for backup purposes. Tape is rarely used, if at all, for home use anymore. Actually, the backup media of choice for commercial use is moving toward external hard drives. Where does the CD fall into all of this?

There are hosts of backup utilities that utilize the CD for backup purposes. Most CD manufacturers advertise that CD media is good for 20 to 100 years depending on the depth of marketing they are trying to offer. The National Institute of Standards Technology (NIST) tests products for longevity. The catch is that longevity is available if the user adheres to very strict rules and standards. Let us look at some interesting facts.

Handling

When a CD is burned, a laser shoots through the bottom of the disc into the dye layer located under the top protective plastic covering on at the top of the CD. This is the layer where the laser burns pits into the dye layer to allow the computer to interpret what is being written by the computer. When the bottom side of the disc becomes scratched or soiled, the laser is diffused and the data is not clearly written.

Secondly, if the top layer becomes damaged, moisture can penetrate the surface and cause the layer to slowly disintegrate and is the beginning of what is called “Disc Rot.”

How often have you watched someone open a CD case and directly pull on the edges of a CD until it is released from the case? Notice how the CD is bent while it is being removed? This bending is causing tiny cracks to develop in the reflective (protective) layer of the CD. To properly remove a CD from the case, press down on the inside of the retaining plastic that holds the CD in place. This causes the retaining ring to become slightly smaller so that the CD slides off easily without bending forces.

When handling, always pick up or carry the CD by the outer edge. Avoid placing your fingers on the read (bottom) side of the disc as this will cause acid penetration of both protective layers to begin.

Reliability

CD-R is a disc that can be written to once while CD-RW are discs that can be written to many times re-

portedly 1000 times. CDs that are the least reliable for archival purposes are the CD-RWs. These discs include a layer that is altered by the CD burner each time it is rewritten. Experience has shown that when these discs are used with another computer, it is common for the second computer to be unable to read it.

I burn a new music CD monthly for each show that I do. (I entertain at nursing and retirement homes.) I burned and placed the CD-RW into my karaoke player; it would not recognize it. In addition, my second computer would not recognize it either. Only the computer that originally burned the CD was able to read it! Imagine if I had saved all of my music and photo images on a CD-RW. When the computer would eventually be replaced, the disc would likely be unreadable. It is better to save data on CD-R discs, as they are readable with any computer with a CD player.

CD-Rs aren't permanent either. The organic dyes layer that the burner works with are similar to dyes in film. When exposed to sunlight, heat, cold and humidity and UV exposure the dye layer changes over time. How often have you watched someone place a CD on the dashboard of a car or keep it in a glove box? Proper storage of CDs is critical to their useful longevity.

Dyes

There are many types of dyes used for the production of a CD. To quote the above mentioned author, "Under the NIST's accelerated "stress test," which includes exposure to very bright light, high temperature and humidity, recorded CD discs using phthalocyanine dye combined with a gold/silver allow reflective layer proved to be considerably more stable than all other types of CD-R media. Discs using azo dye as the data layer had less stability under light, temperature and humidity testing. Media using cyanine dye performed well when exposed to light, but had longevity problems under temperature and humidity stress.

DVDs, which generally use a modified form of a stabilized cyanine dye for the recording layer, are less pre-

dictable in terms of longevity. NIST data suggest that, "despite lower data capacity, you might be better off in the long run using premium CD-Rs instead of DVD+/-R discs."

The author went on to say that it's not always possible to tell what kind of dye was used for the manufacture of the disc because the dyes can be tinted. Cyanine-based CDs (most common) have a light green or blue tint on the data side. Phthalocyanine dyes are often light green while the azo dye tends to have a blue color.

While it's possible to tell the dye type by reading the specs from the manufacturer, a better indicator might be the reflective layer. If a gold reflective layer was used then the likelihood of using a good quality dye is increased. Be aware, some cheap discs appearing to have a gold layer may be simply paint. Buyer beware!

Recommended brand discs are Fujifilm, Imation, Kodak, Maxell, TDK, Verbatim and Mitsui/MAM-A.

Protection and Care of CDs

Manufacturers recommend storing CDs vertically in a cool, dry area instead of horizontally. The reason is to prevent warping and damage from humidity.

Also, never use solvent based pens to write on them similar to permanent felt tipped pens. The solvent can penetrate the protective layer and damage the reflective layer below. The only safe place to write on the top of a CD is in the clear center portion of the hub when using a felt tipped pen.

It is better to apply a label to the top of the disc for identification purposes. Never write on the label with a ballpoint pen when it is applied to the disc. The tip of the pen can cause stress cracks in the protective layer.

When using CD-RW discs, I use removable labels (see www.digitalinnovations.com). They can be written on many times and then removed and replaced as necessary.

For discs that I intend to keep for archival purposes I print the contents on the label with an ink jet printer (see www.fellowes.com).

When cleaning to remove fingerprints or smudges on the read side on the read side of the disc, always use a CD or lens cloth wiping radially out from the center. Never clean using small circular motions on small portions of the disc as it can cause diffusion of the laser beam. Isopropyl alcohol or clear or soapy water can be used to clean a grimy disc. Never use acetone, anti-static agents, or wood-based products such as toilet paper or facial tissue to clean a disc.

When applying labels, be sure to center the label on the disc to avoid “off balance” condition when the disc is being used. When the disc is rotated at high speeds, the “off balance” condition can unbalance the disc and cause problems with high speed readers. For this reason I purchased a label applicator that perfectly centers the

label each time versus putting the label on the disc “by eye.”

The Future

Like the 1.4 MB floppy drive, tape drives, Zip discs and the LS 120 disks that are no longer being used, the CD as we know it will likely bite the dust in about ten years. I predict the media of choice for backup and archival purposes will be that of external drive media similar to USB jump drives and flash card burners or other external drive sources. Personally, I use a 160 GB external hard drive to backup my computer data including music and photo files. Because of transportability, I also backup my music and photos on CDs and store them at an offsite location in a safety deposit box.

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CCS Help Line

For Members Only.

You can get help with your computer needs by going to the CCS web site in the members only area.

Click CCS Help Line.

Sony BMG – Shame on You!



Computer users may have noticed the recent brouhaha about Sony music CDS. Is there a valid issue or simply a lot of heat with no real threat?

The issue developed from the desire of Sony-BMG to copy-protect its music CDS. If the music CD is played in a personal computer, and the “accept” button is clicked, then software known as XCP is installed. XCP reportedly uses “rootkit” technology. *Wikipedia* states that a “rootkit is a set of software tools frequently used by a third party (usually an intruder) after gaining access to a computer system. These tools are intended to conceal running processes, files or system data, which helps an intruder maintain access to a system without the user’s knowledge. Rootkits are known to exist for a variety of operating systems such as Linux, Solaris and versions of Microsoft Windows. The rootkit concept is the dominant controversial aspect of the 2005 Sony CD copy protection controversy, which has made the previously obscure concept of a rootkit much more widely known in the technology community, and to the general public.”

The technical issues seem to be rather complicated, but a survey of the articles available on the Internet is disturbing. Apparently, rootkits install a backdoor to the computer and are difficult to remove. Apparently, there is a patch available that may or may not remove the Sony software. Personally, this author thinks the only alternative is to avoid Sony CDS or to avoid playing any Sony CDS on a personal computer. The music industry is very serious about copyright violations and may think that the “end justifies the means” in this particular matter.

The following is a portion of a Sony response dated November 18, 2005. “You may be aware of the recent attention given to the XCP content protection software included on some SONY-BMG CDS. This software was provided to us by a third-party vendor, First4Internet.

Discussion has centered on security concerns raised about the use of CDS containing this software. We share the concerns of consumers regarding these discs, and we are instituting a mail-in program that will allow consumers to exchange any CD with

XCP software for the same CD without copy protection and receive MP3 files of the same title. We also have asked our retail partners to remove all unsold CDS with XCP software from their store shelves and inventory. Please click here for exchange program details.

“Our new initiatives follow the measures we have already taken, including the voluntary suspension of the manufacture of CDS with the XCP software. In addition, to address security concerns, we provided to major software and anti-virus companies a software update, which also may be downloaded at <http://cp.sonybmg.com/xcp/english/updates.html>. We will shortly provide a simplified and secure procedure to uninstall the XCP software if it resides on your computer.”

Sony sounds like it is trying to respond in a responsible manner. However, this type of response is also an attempt to institute damage control. Sony has been sued by the Electronic Frontier Foundation and the Attorney General for the State of Texas regarding this practice.

EFF filed its complaint in a California state court on November 21, 2005. The EFF Web site states that “by

by **John Brewer**
December 2005 eMonitor,
Computer Club of Oklahoma City

including a flawed and overreaching computer program in over 20 million music CDS sold to the public, Sony-BMG has created serious security, privacy and consumer-protection problems that have damaged music lovers everywhere.

At issue are two software technologies: SunnComm's MediaMax and First4Internet's Extended Copy Protection (also known as XCP), which Sony-BMG claims to have placed on the music CDS to restrict consumer use of the music on the CDS, but which in truth do much more, including monitoring customer listening of the CDS and installing undisclosed and in some cases hidden files on users' computers that can expose users to malicious attacks by third parties, all without appropriate notice and consent from purchasers. The CDS also condition use of the music on unconscionable licensing terms in the End User Licensing Agreement (EULA).

After a series of embarrassing public revelations about security risks associated with the XCP software, including warnings issued by the United States Government, Microsoft and leading anti-virus companies, Sony-BMG has taken some steps to respond to the security risks created by the XCP technology. Sony-BMG has failed, however, to address security concerns raised by the MediaMax software or the consumer privacy and consumer fairness problems created by both technologies."

The Attorney General of the State of Texas has also filed litigation regarding the same spyware from Sony. The Web site for the AG addresses the litigation. Today [Texas] "sued SONY-BMG Music Entertainment as the first state in the nation to bring legal action against SONY for illegal "spyware." The suit is also the first filed under the state's spyware law of 2005. It alleges the company surreptitiously installed the spyware on millions of compact music discs (CDS) that consumers inserted into their computers when they play the CDS, which can compromise the systems.

The Attorney General's lawsuit alleges the New York-based company violated a new Texas law protecting consumers from the hidden spyware. The company accomplished this by using new technology on certain music

CDS to install files onto consumers' computers that hide other files installed by SONY. This secret "cloaking" component is installed without the knowledge of consumers and can cause their computers to become vulnerable to computer viruses and other forms of attack.

"SONY has engaged in a technological version of cloak and dagger deceit against consumers by hiding secret files on their computers," said Attorney General Abbott. "Consumers who purchased a SONY CD thought they were buying music. Instead, they received spyware that can damage a computer, subject it to viruses and expose the consumer to possible identity crime."

SONY insists on its Web site that it has recalled all affected CDS. However, Attorney General's investigators were able to purchase numerous titles at Austin retail stores as recently as Sunday evening.

According to SONY's Web site, the company recently distributed millions of CDS across the nation on 52 CDS by various artists. These CDS contained embedded files used for copy protection – or XCP technology. The files prompt consumers to enter into a user agreement to install SONY's audio player. By opting into the agreement, which Sony represents is the only way a consumer can listen to these CDS on a computer, the consumer is unaware that SONY secretly installs files into the computer's Microsoft Windows folders. Consumers are unable to detect and remove these files.

SONY-BMG claims on its Web site that this XCP technology merely prevents unlimited copying, is otherwise passive and does not gather personal information about a computer user. However, the Attorney General's investigation into this technology revealed that it remains hidden and active at all times after installation, even when SONY's media player is inactive, prompting concerns about its true purpose.

The Attorney General's lawsuit also alleges that a phantom file is installed to conceal the XCP files from the user, thus making it difficult for the user to remove the files from his or her computer. Moreover, recent

news accounts allege that newly created viruses that exploit this phantom file have been spreading. A user unfamiliar with installation – and removal – of this technology may be vulnerable to new security risks and possibly identity theft.

Because of alleged violations of the Consumer Protection Against Computer Spyware Act of 2005, the Attorney General is seeking civil penalties of \$100,000 for each violation of the law, attorneys' fees and investigative costs."

Sony-BMG – shame on you!

John Brewer practices law in Oklahoma City, is a member of the Governor's and Legislative Task Force for E-Commerce, and enjoys issues relating to eBusiness and cyberspace. Comments and questions are welcome and can be emailed to johnb@jnbrewer.com.

The Editorial Committee of the Association of Personal Computer User Groups (APCUG), an international organization of which this group is a member, brings this article to you. ■ (TOC)

File Conversion Service Available

Among the PR announcements that come our way, some seem worthwhile and of general interest. This one falls into that category.

Advanced Computer Innovations, Inc., has expanded its unique internet-based "instant online conversion" service. It now converts users' files between most word processor, spreadsheet and graphics file formats, as well as some data base formats. It also performs letter-perfect conversion of almost any such file to PDF (Adobe Portable Document Format).

This service is available 24/7. There is no software to purchase, nor any subscription fee or commitment. Users just pay as and when they need to convert files. Converting a small set of files costs as little as \$9.

This is an easy-to-use and reliable conversion service. From the service's web page (<http://www.acii.com/online.htm>), the user clicks a "Convert" button, drags files to be converted into a dialog box that appears, and enters payment information. The files are then automatically uploaded to a conversion server, and in a couple of minutes the converted files are downloaded back to the user. All communication (data files and transaction information) is encrypted and there is no security compromise.

Additional details are available at <http://www.acii.com/online.htm>. ■ (TOC)

CCS member whose number was posted in last month's issue did claim his or her prize, a \$25 gift certificate from Best Buy. Be on the lookout to see if your membership number is posted each month in eH-C to win a prize.

BASICS

A USB Primer



By now most computer users are familiar with the term USB or Universal Serial Bus. This connection port on your computer is designed to replace the older serial, parallel and PS2 ports. Probably within a year you won't find any new computers with these older ports. They will have only USB. There are some things you might find useful about USB ports and hubs which could reduce or eliminate problems in dealing with them.

USB ports have a number of advantages over the old system of parallel/serial ports. They do not require I/O memory space or individual IRQ lines. Anyone who has had to work with older computers and operating systems will remember the problems of trying to prevent IRQ conflicts when connecting external devices such as scanners or modems. How many times did the sound card manage to steal IRQ's that you had to have for another device? USB also allows for automatic device configuration and hot-plug capability.

The hot-plug or hot-swap function means that you don't have to power down the computer and go through a restart when you want to connect a new device. Instead you simply connect or disconnect the USB cable. The computer will recognize the device and connect to the proper driver. That is assuming this isn't the first time you have used the device and that the driver has already been installed. You commonly have to install drivers for external hard drives, printers, scanners, card readers, etc. You generally don't have to install drivers for mice and keyboards that connect to the USB ports.

Next, consider that USB operates at three possible speeds: low speed or 1.4 megabits/second, full speed or 12 megabits/second, and high speed or 480 megabits/

second (mbps). Low speed and high speed can be used with either USB 1.x or USB 2.0 hosts. The high speed can be used only with USB 2.0. The host is the computer that provides the USB connections.

by Brian K. Lewis, Ph.D.
Sarasota PCUG, Florida

For USB 2.0 operation, the host computer's "root port hubs" must support USB 2.0. That means the computer must have USB 2.0 drivers that are supported by the operating system.

Windows XP (service pack 1.0) and Windows 2000 both support USB 2.0. The root port hubs are the USB connectors on your computer and are usually connected to the motherboard. You can also identify them in the Device Manager, where they will show under the USB Host Controller.

Although the USB specifications indicate you can daisy-chain up to 127 devices from one port, this is not likely to happen because of the power drop that occurs over long connections. You can get external hubs that allow you to connect 4 to 7 devices to a single root port hub. The external hubs are repeaters that relay transaction information from the computer to a device connected to the hub's port.

There is a catch to this as well. Some USB 2.0 hubs will decrease their maximum output if you have a USB 1.x device attached to a port. This means that any USB 2.0 device attached to the hub may not function or will function at a lower speed. I learned this the hard way with an external USB 2.0 hard drive. I thought the problem was the drive, but it was the hub. I had a USB 1.0 card reader attached to the hub and as a result the current output to each port was reduced to the point that it was not sufficient to run the drive. This occurred even though the hub and the drive had external power supplies.

An ample power supply is necessary to operate USB devices. Root hub ports can provide 5 volts and up to 500 milli-Amps (mA) of current. The USB power specifications state the USB ports should provide between 100 mA and 500 mA. Devices connected directly to the computer are able to obtain the maximum current.

So let's take a situation where we have a hub connected to the computer's root port hub. The hub is receiving 500 mA of current at about 5 volts. If only the current received through the connecting cable powers the hub, the output from each of its four hubs will be only 100 mA. This is referred to as a "bus-powered" hub because it receives its current solely from the USB bus in the host computer. However, if the hub has its own power supply and is receiving at least 1.6 Amps from this supply, then it can provide a 500 mA output at each port. In this case, the hub should be able to support high-speed USB 2.0 devices.

On some computers you will find an icon in the system tray that is a "hardware disconnect". In this instance, you need to double click the icon and wait for it to permit you to disconnect the hardware device. This icon does not appear with all USB devices. Since installing Windows XP Service Pack 2, I haven't seen this icon in my system tray. There are some reports of computers with SATA drives showing this icon. Since the SATA drive is supposed to be hot-swappable like USB devices, I'm not surprised that the icon shows up. However, with my Seagate SATA drive, I still don't see this icon. That may be because my motherboard doesn't support the hot-swap function even though it supports SATA drives.

When you plug in a USB device to either a hub or a computer port, there is an initial identification process referred to as the "configuration" step that occurs. During this configuration process the device can not draw more than 100 mA. If it does, the process will fail and it will appear that the device failed to work. The configuration process identifies the device, its drivers, and its power requirements.

Only after this process is complete will the device be able to draw more than 100 mA current. Since this process is not instantaneous, some time must be allowed by the user before attempting to use the device. In addition, this configuration may not occur if the device is plugged into the computer before the computer is turned on and booted. In these cases, it may be better to connect the USB device after the computer is fully operational. Most of the time, the computer will identify and configure the device during the bootup.

Microsoft has a knowledge base article on troubleshooting USB problems (#310575). Typically the problems relate to drivers or power problems. However, they also point out that high-speed devices should be connected with high-speed cables only. The low speed cables may distort the signal as a result of their reduced amount of shielding.

Another really complete source of trouble-shooting information can be found at: <http://www.usbman.com/winxpusbguide.htm>. This has references for Windows ME as well as XP and Windows 2000. However, anyone who hasn't dumped Windows ME should seriously consider doing so as soon as possible. WinXP is such a tremendous improvement over ME and will really make your computing experience much more enjoyable. My computer hasn't locked up or crashed in more than six months, probably longer. I really don't keep track anymore.

So what devices are typically high speed and require USB 2.0? Let's start with external USB hard drives. Seagate has a very interesting technical paper on external hard drives. In this paper they state that most 2 1/2" external drives require 1000 – 1100 mA during the start-up cycle and then can function at the 500 mA maximum current available from the USB port. They also state that most USB ports can support up to 700 mA on a continuous basis. This is something I have not found elsewhere. Consequently, my recommendation is that when looking for an external drive, pick one with its own power supply. I wouldn't want to depend on one that drew all its power from the USB bus.

Other high-speed devices include laser printers, scanners, and multi-function printers. All of these should have their own power supply. Other devices that operate at full-speed and don't need external power are blue-tooth adapters and card readers. This is only a partial list of what is available in USB devices. Just remember when you are looking at them that the term "full-speed" does not mean 480 mbps (which is high speed), instead it is the slower 12 mbps.

Dr. Lewis is a former university & medical school professor. He has been working with personal computers for more than thirty years. He can be reached via e-mail: bwsail at yahoo.com.

The Editorial Committee of the Association of Personal Computer User Groups (APCUG), an international organization of which this group is a member, brings this article to you. ■ (TOC)

Mini Expo IV

Some of the classroom lecture sessions



CCS Downtown Chapter

by Allen Kapusta



November 16, 2005 meeting

The meeting of the Downtown Chapter was called to order at approximately 6:00 PM by the group's coordinator, Norbert Rosenthal. The meeting started with the usual open forum.

Open Forum

Q. Is there a way to enlarge the font size of what you're viewing on AOL?

A. Most browsers have a setting for font size (in Internet Explorer, from the View menu, select Text Size).

Q. Does anybody know how to prevent oddball things from occurring when accessing an application service provider with Internet Explorer?

A. Check your display settings. The application may be sending HTML that does not fit your display.

Q. Someone sent me an e-mail with an attachment, and the e-mail was displayed with a box with an "X" in it where the attachment would be. The e-mail could be displayed properly when it was sent to a different address.

A. Your e-mail server or e-mail client (program) blocked the attachment. There is probably a means of controlling what e-mails are blocked. Some e-mail services block all ".exe" files because they may contain malicious software. Yahoo allows you to select items in your "spam" list and allow e-mails from that sender to be treated as good.

Presentation: Research via the Chicago Public Library

The speaker for the meeting was Joe Vangsness, and the topic was:

"How to Use Databases at Public Libraries for Business, Professional, or Personal Research"

Joe described how to access databases through the Chicago Public library's website, www.chipublib.org. Their website gives you access to their catalog of books as well as several databases. To access the databases, you have to enter your Chicago Public Library card number.

You can also access the databases at the libraries in person. The Harold Washington main library has computers connected to the Internet and computers with Microsoft Office where you can save your work to floppy disk or flash drive. Computers at the Harold Washington library are shut down at 6:30 PM although the library is open until 7pm.

The library has a search engine to locate information in databases. The databases cover several topics:

Arts & Music	History
Biography	Kids & Teens
Business	Literature
Education	Politics & Government
en Espanol	Science & Technology
Genealogy	Social Science
Health & Medicine	

Accessing the search engine from your own computer may require that you turn off "privacy" in *Norton Firewall* if the search engine has to go through another service.

Heritage Quest Online allows you to search census records: both individual historical records and consolidated recent statistics.

ReferenceUSA (from InfoUSA) provides information on 10 million companies. ReferenceUSA is not available through the Library web site. You can only access it through the Harold Washington Library. Joe demonstrated how to search the commercial version of ReferenceUSA, which is called InfoUSA. You can search for company information and select on sales, number of employees, type of business, credit rating, location and job title. He showed how to save the information in text

files, then import the data into *ACT*.

Joe demonstrated how to search on ABI/INFORM which contains abstracts and full text (for many sources) of business, management, economics, and related journals, magazines, and other sources.

For comparison, Joe showed the Schaumburg Public Library website and the databases that are available to their patrons.

The meeting ended at approximately 8:00 PM.

■ *(TOC)*

Digital Imagery Sig

by Henry Werner

December 21, 2005 Meeting

We met at RBK (RBK Enterprises, 1988 University in Lisle) at 7 PM. Meetings are on the third Wednesday of each month. The purpose of the SIG is to share information in Digital Imagery by bringing amateurs and professionals together for a knowledge exchange. Most meetings start with an open forum, but tonight's meeting had a different format.

The Program

Tonight's program was to photograph houses decorated for the season. Sanford handed each of us sheets with directions. Bill Doyle had scouted the sites Sunday night and taken photographs. One is displayed here.

They suggested we use a tripod and turn our cameras' flashes off. We formed car pools for the drive and drove to the first of several sites, following the excellent directions and one another. After visiting the sites, which were spectacular, we met at Dunkin Donuts to warm up and discuss the evening's event.

We are asked to bring our pictures, in computer readable format, to the January meeting. The program will be displaying and discussing the pictures taken tonight.

Many thanks to Bill for his excellent preparation and suggestions.

The Digital SIG meets on the third Wednesday of each month. Information about the SIG, each meeting's program and the meeting location site can be found on CCS's web site, www.ccs.org. ■ *(TOC)*





CHICAGO COMPUTER SOCIETY
Highlights of Minutes of the Board Meeting of 01/14/06

Quorum requirement was not met so no official meeting was held.

Share a Photo



Picture taken in Millinium Park in Chicago by Sanford Kolinek